June, 1947

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EDISON ELECTRIC INSTITUTE BULLETIN

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PUBLISHED MONTHLY BY EDISON ELECTRIC INSTITUTE

THE ELECTRIC LIGHT AND POWER INDUSTRY

Current Statistical Data Covering 100 Per Cent of Industry

March, 1946-1947

SOURCE AND DISPOSAL OF ENERGY (In Kilowatthours)—MONTH OF MARCH

	1947	1946	%
GENERATION* (Net)			
By Fuel Burning Plants	13,981,249,000	10,521,418,000	+32.9
By Water Power Plants	7,264,665,000	7,278,471,000	− 0.2
Total Generation	**21,245,914,000**	**17,799,889,000**	**+19.4**
Add—Net Imports Over International Boundaries	113,026,000	158,516,000	−28.7
Less—Company Use	150,190,000	132,041,000	+13.7
Less—Energy Used by Producer	426,541,000	176,703,000	.....
Net Energy for Distribution	**20,782,209,000**	**17,649,661,000**	**+17.7**
Losses and Unaccounted for	3,010,279,000	2,559,145,000	+17.6
Sales to Ultimate Customers	**17,771,930,000**	**15,090,516,000**	**+17.8**

CLASSIFICATION OF SALES

NUMBER OF CUSTOMERS—As of March 31st			
Residential or Domestic	30,092,644	28,499,536	+ 5.6
Rural (Distinct Rural Rates)	1,420,353	1,253,581	+13.3
Commercial or Industrial:			
Small Light and Power	4,769,290	4,471,834	+ 6.7
Large Light and Power	180,264	165,719	
Other Customers	127,614	118,981	+ 7.3
Total Ultimate Customers	**36,590,165**	**34,509,651**	**+ 6.0**
KILOWATTHOUR SALES—During Month of March			
Residential or Domestic	3,726,868,000	3,282,094,000	+13.6
Rural (Distinct Rural Rates)	319,530,000	249,320,000	+28.2
Commercial or Industrial:			
Small Light and Power	3,025,638,000	2,622,336,000	+15.4
Large Light and Power	9,284,930,000	7,592,054,000	+22.3
Street and Highway Lighting	200,446,000	192,955,000	+ 3.9
Other Public Authorities	491,052,000	486,015,000	+ 1.0
Railways and Railroads:			
Street and Interurban Railways	434,052,000	384,195,000	+13.0
Electrified Steam Railroads	239,350,000	228,616,000	+ 4.7
Interdepartmental	50,064,000	52,931,000	− 5.4
Total to Ultimate Customers	**17,771,930,000**	**15,090,516,000**	**+17.8**
Revenue from Ultimate Customers	**$313,073,500**	**$282,653,400**	**+10.8**

RESIDENTIAL OR DOMESTIC SERVICE

AVERAGE CUSTOMER DATA—for 12 months ended March 31, 1947			
Kilowatthours per Customer	1,358	1,267	+ 7.2
Average Annual Bill	$43.05	$42.57	+ 1.1
Revenue per Kilowatthour	3.17¢	3.36¢	− 5.7

(*) By courtesy of the Federal Power Commission.

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EDISON ELECTRIC INSTITUTE BULLETIN

Volume 15 JUNE, 1947 No. 6

Institute Holds Greatest Convention in Fifteen Years

AN attendance of approximately 3000 representatives of the electric utility industry, with a higher than usual proportion of younger executives; keen interest in the exceptionally well-planned program, replete with timely subjects ably presented by outstanding speakers; and a universal feeling among those attending of pride in past achievements, and confidence in future progress, marked the Institute's 15th Annual Convention, held at Atlantic City, N. J., June 2-5, inclusive.

The attendance, greatest in the past 15 years, indicated the marked post-war increase of interest in the activities of the Institute and appreciation of the value of the annual meeting, which this year gave many young men their first opportunity to appreciate the wide interests of the industry, analyze common problems and make lasting friendships.

Charles E. Oakes, president of the Pennsylvania Power & Light Company, Allentown, Pa., was elected president of the Institute at the meeting, and will serve until June, 1947. Mr. Oakes succeeds Grover C. Neff, president of the Wisconsin Power and Light Company, who has been the Institute's president since June, 1946.

Ernest R. Acker, president of the Central Hudson Gas & Electric Corporation, Poughkeepsie, N. Y., was elected vice-president of the Institute. Sixteen new directors with terms expiring in 1950, were elected at the meeting.

Some 19 addresses, covering a wide range of subjects important to the industry, were delivered during the six business sessions. Many are published in this issue of the BULLETIN, with the remaining scheduled for the next issue. In addition to the general sessions a number of committees and special meetings were held during the Convention period. These included on Monday, meetings of the Board of Directors, and the Accounting Division General Committee, the Commercial Division General Committee, the Engineering Division General Committee, the Industrial Relations Committee, the Insurance Committee, the Statistical Committee and the Rate Research Committee.

At the meeting of the Board of Directors on Wednesday, Mr. Elmer Lindseth, in behalf of his colleagues on the Board, expressed the deep appreciation of the industry for Mr. Neff's able leadership of the Institute during his term as president. The Board by a rising vote indicated its thanks for Mr. Neff's notable contribution to the progress of the electrical industry.

Recreational highlights of the Convention were the musical program given Wednesday evening by Phil Spitalny's All-Girl Hour of Charm Orchestra before an audience which crowded the Auditorium of the Convention Hall; an informal buffet dinner in honor of Mr. and Mrs. Neff on Monday evening; and cocktail parties on Tuesday and Wednesday evening with the Westinghouse Electric Corporation and the General Electric Company, respectively, as hosts. Ladies attending the Convention enjoyed the hospitality of Bendix Home Appliances, Inc., at a luncheon on Tuesday, and of Sylvania Electric Products, Inc., on Wednesday.

OFFICERS OF EEI 1947-1948

C. E. OAKES, *President*
Pennsylvania Power and Light Company, Allentown, Pa.

E. R. ACKER, *Vice-President*
Central Hudson Gas and Electric Corp., Poughkeepsie, N. Y.

H. S. BENNION, *Vice-President and Managing Director*
420 Lexington Ave., New York 17, N. Y.

K. B. CRUMB, *Treasurer*
American Gas and Electric Service Corp., New York, N. Y.

MAE B. WOODS, *Secretary*
420 Lexington Ave., New York 17, N. Y.

First General Session

Opening the first business session with the President's address, Mr. Neff announced that $4,000,000,000 will be expended by the electric power industry in the huge construction program scheduled for completion within the next few years. This total expenditure compares with the present total capitalization for the industry of $13,000,000,000, and indicates the tremendous expansion in the use of electric energy that is foreseen by utility executives, he declared.

Analyzing the industry's financial prospects, he declared that investors can see that at present, earnings are at a high point, due to the heavy loads upon the power systems. However, very high prices will be paid for needed plant expansion over the next several years, Mr. Neff explained, and "The companies will have a real commercial and financial problem on their hands, to keep earnings sufficiently high to attract necessary capital."

The growth of demand for electric service "outraces the estimates of even its own boosters," Mr. Neff said. The December 1946 peak load for the nation, and kilowatthour output for that month, were well above the highest comparable figures for the war period, and present demand continues to run well ahead of 1946 figures, he asserted.

A high level of industrial activity, speeded-up electrification of industry, and the low cost of electricity were credited by Mr. Neff as contributing to the

CHARLES E. OAKES

Newly elected president of the Edison Electric Institute

growth of peak load. "The public is only prevented from increasing its demand still faster by the unavailability of appliances and equipment it would like to buy," he said.

Turning to the industry's achievements in farm electrification, Mr. Neff said that 78 per cent of the nation's farms will have electric service available by the end of June, 1947. An estimated 89 per cent will be reached by power lines at the end of 1948. "With 95 per cent as the practical upward limit, we can see that the period of large-scale electric line building to farms is rapidly drawing to a close."

"Labor expects more from employers than plausible arguments in defense of private enterprise," the convention was told by Ralph Chaplin, labor authority and veteran of fifty years' experience in the labor movement. "It isn't enough that you join us in denouncing communism. You must help us to formulate labor policies based upon American principles of freedom and fair play—and you must help us to make them stick."

"Labor's new friends are proving to be every bit as dangerous as its ancient enemies. It was the blandishments of the New Deal, rather than the pick-handles of Pinkertons, that finally softened us up . . . capitalist exploiters of the old school were tough, but there were ways of handling them. We are just beginning to learn that we don't handle the man-herders of Big Government; they handle us. Even the toughest of the old-time fighting exploiters had no intention of transforming free American wage-earners into unwilling serfs of the state," Mr. Chaplin declared.

As a basic preliminary to any move to insure labor peace on the American home front, both labor and management "must realize that neither has the right to stop the wheels of key industries, paralyze our economy, halt public transportation and communication, or cut off supplies of food, fuel and vital power services," Mr. Chaplin said. "Both unions and employers must realize that they are minority groups and, as such, are at all times responsible to the American majority. Big labor has no more right to become a monopoly than Big Business, and no more right to become dictatorial than Big Government."

Dr. Claude Robinson, President of the Opinion Research Corporation, warned the audience that electric utility management must be a close student of popular trends, and the means for communicating ideas to the public, if companies are to be operated successfully under today's conditions.

Emphasizing the importance of changes in public opinion to business management, Dr. Robinson declared that "If people think that they will be better off under a system of nationalization, then we will have an American socialist state. On the other hand, if people think we will be better off under a system of competitive capitalism, then we will have no socialization. It all depends on the ideas in people's heads."

While the electric utility industry is sponsoring a national advertising program, in some cases this activity has not been supported by aggressive public relations efforts at the local level, Dr. Robinson warned.

Urging his audience to provide information for their employees on the principles of private ownership of utility companies, and to encourage them to spread this data, Dr. Robinson pointed to public opinion polls which show that only 2 or 3 per cent of those questioned could remember talking with power company employees on the advantages of business management of utilities.

"Good public relations stems from within—no amount of advertising can or will create it," E. R. Dunning, Vice-President, N. W. Ayer & Son, Inc., told the convention, in the concluding address of the first session. Urging his audience to employ public opinion surveys to learn the state of public feeling in their territories, Mr. Dunning recommended "a continuous informative effort, using all media available."

"Make sure that your employees understand the battle," he continued. "Join up with every worthwhile community enterprise. Encourage the 'up-and-comers' in your organization particularly to take part. Show by example through them that the 'opportunity' part of our story is true and workable."

Following Mr. Dunning's talk, a film featuring Thomas A. Edison, in two messages to the industry's conventions in

CHARLES E. OAKES

CHARLES E. OAKES, President of the Pennsylvania Power & Light Company, Allentown, Pennsylvania, was elected President of the Edison Electric Institute by the Institute's Board of Directors, on June 4 at the Annual Convention. In his new position, Mr. Oakes will direct the work of the Institute during the next twelve months, and will also continue his responsibilities with the Pennsylvania utility company.

As the President-elect of the Institute, Mr. Oakes succeeds Grover C. Neff, President of the Wisconsin Power & Light Company, who has held the post of President of the Institute with outstanding success since June, 1946.

Widely known as one of the industry's outstanding executives, Mr. Oakes brings to his new duties the knowledge and experience gained in 24 years of varied engineering and managerial positions in the industry.

Born in Pendleton, Oregon, in 1892, Mr. Oakes is a graduate of Oregon State College. He received an M.M.E. degree at Cornell University in 1917.

He began his career as an electrical engineer with the National Bureau of Standards at Washington, D. C., in 1917. Following four years with this agency, he joined the Federal Power Commission, as an electrical engineer, and spent two more years in government service.

Mr. Oakes was employed by the Pennsylvania Power & Light Company in 1923 at first as an engineer in the company's rate department. From 1925 to 1927, he acted as a special assistant to the company's president, and was promoted to division manager in 1927.

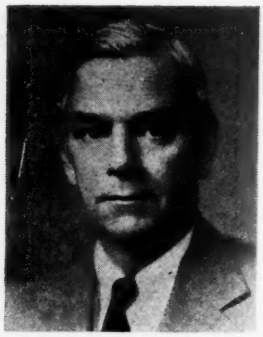
In 1939, he was elected President of the Birmingham Electric Company, at Birmingham, Alabama, and held this post until 1945. He then returned to the Pennsylvania Power & Light Company, as President, and is still serving in this capacity.

Mr. Oakes has always been active in civic and business organizations, having been president of the Allentown Chamber of Commerce from 1932 to 1935. He was a director of the Associated Industries of Alabama, and Vice-President of the Birmingham Chamber of Commerce. He has also served as President of the Pennsylvania Electric Association, a statewide group of electric utility companies.

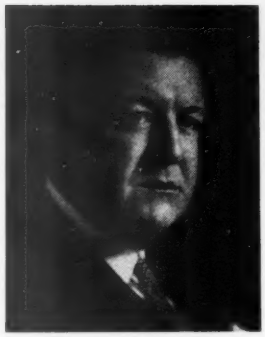
New Members E.E.I. Board of Directors

(Terms Expiring in 1950)

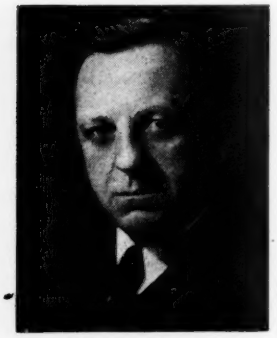
IN addition to new members of the EEI Board of Directors pictured on this page, President Oakes and Vice President Acker were elected to the Board for the term expiring in 1950. Mr. McCance was elected to fill the unexpired term of Mr. E. C. Stone.



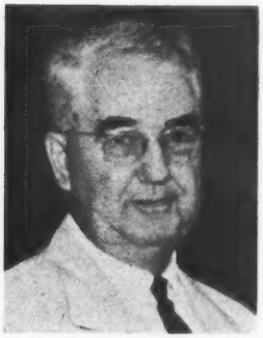
AUSTIN D. BARNEY
President, Hartford Electric Light Co.



E. F. BARRETT
President, Long Island Lighting Co.



REX I. BROWN
President, Mississippi Power & Light Co.



HANCE H. CLELAND
President, San Diego Gas and Electric Co.

J. A. LONGLEY
President, Central Illinois Light Co.

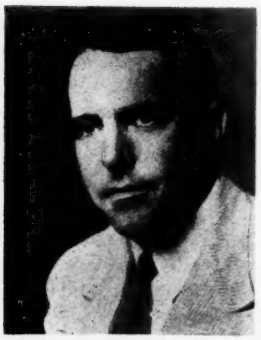
P. H. MCCANCE
President, Duquesne Light Co.

L. A. MAGRAW
President, Central Illinois Public Service Co.

H. B. MUNSELL
President, Kansas City Power & Light Co.

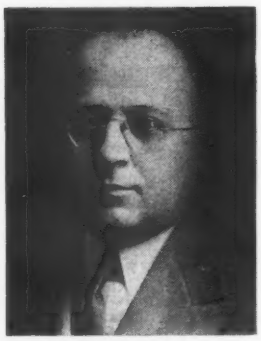
ROY S. NELSON
President, Gulf States Utilities Co.

B. F. PICKARD
President, Interstate Power Co.



MCGREGOR SMITH
President, Florida Power and Light Co.

A. C. SPURR
President, Monongahela Power Co.



C. J. STRIKE
President, Idaho Power Co.

O. TITUS
President, Metropolitan Edison Co.

1929 and 1930, was shown, in tribute to the centennial anniversary of the great inventor's birthday.

Second General Session

"Youth Must Be Served," a clever presentation of an idea dramatizing electricity as the all-around servant of the home and factory, farm, and store, opened the second general session. This feature was a ventriloquial skit with Reddy Kilowatt, the electric servant, as a dummy in the hands of Kae Carole, a young ventriloquist who served overseas with the U. S. O.

Miss Carole impersonated a young girl in dungarees, wanting to know more about what makes a business like the electric business tick—and particularly how she can get more and better electric service than her parents had. Reddy drew Miss Carole into conversation about high school boys and girls and told her how he can do many jobs for these young people today better electrically and cheaper than her forefathers were able to enjoy.

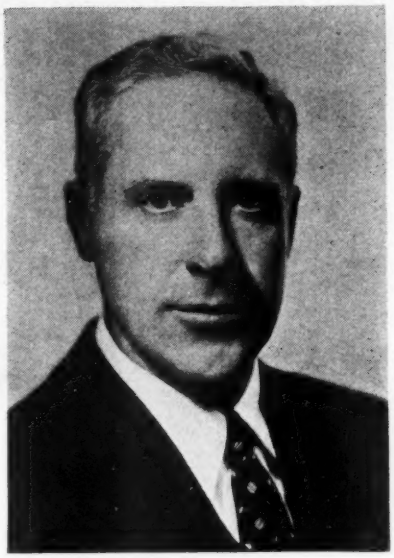
By 1950, the average American worker will have at his command enough electrical equipment to equal the energy of 400 slaves of Pharaoh's time, the meeting was told by L. E. Osborne, Vice-President of the Westinghouse Electric Corporation.

The war brought many new uses of electric power in industry which are just beginning to be exploited, Mr. Osborne continued, such as high frequency heating, infra-red drying, and high-speed electric furnaces.

Pointing to a production of 223 billion kwhr in 1946, Mr. Osborne said that "with continuation of favorable business conditions, this may reach as high as 300 billion within the next five years."

In 1976 the electric utility should have an annual sale of 1,000 billion kwhr, with a gross revenue of 14 billion dollars, if its rate of growth during the next 30 years is only one-half that of the last 30 years, the Convention was told by Elmer L. Lindseth, President of The Cleveland Electric Illuminating Company.

At the same rate of increase, the present plant capacity of 50 million kw may reach 250 millions, and the 16 billion dollar plant and property account may grow to 80 billions—a figure which exceeds by 10 billion dollars the total 1941 assets of all manufacturing corporations in the United States, Mr. Lindseth declared.



ERNEST R. ACKER

Newly Elected Vice-President of Edison Electric Institute

Mr. Acker is a graduate of Cornell University. He joined the Central Hudson Gas & Electric Corporation in 1919, following service with the AEF.

Starting as a design and construction engineer, Mr. Acker joined the Commercial Department in 1925, as assistant to the commercial manager. He became General Commercial Manager in the same year. In 1932, Mr. Acker was elected President and General Manager of Central Hudson, a position he still holds.

"To guide this prodigious industry of the future will call for leadership of the highest order on the part of young men now rising in the industry, and other young men yet to be hired," Mr. Lindseth emphasized. The opportunities open to younger executives in the utility industry are indicated by surveys showing that within the next 15 years alone, half of the nation's operating companies must replace their 5 top executives, and 9 out of 10 other companies must replace a majority of their chief executives.

Since unfettered human initiative is the source of all progress, our American system of government, which encourages initiative by placing responsibilities directly on the individual citizen, is the principal reason why this country is the most prosperous and powerful in the world, Frank R. Pierce, President of the Dearborn Motors Corporation, declared in the session's closing address.

"Here in this country less than 7 per cent of the world's population has created more new wealth than all the 2.000,000,000 human beings in the rest of the world—and the benefits of this great wealth have been more widely enjoyed than is the case in any other country, or at any other time," Mr. Pierce continued.

"Instead of following the time-honored procedure of trying to control people's lives through strong centralized authority, our government was set up with the idea of allowing free men to make full and effective use of their ability and imagination," he explained.

Third General Session

Speaking at Wednesday morning session, Dr. Adam S. Bennion, Vice-President of the Utah Power & Light Company, declared that "a program of security is a primary demand of all employees today, and they will insist upon it, whether furnished by private industry or by the government."

Charging that "Governmental aid is never a gift—it is an assessment," Dr. Bennion asserted that a government-sponsored security program would prove too costly, due to political controls, excessive payrolls and red tape involvements. In addition, he said, "When the government nurtures us, it deprives us of our freedom. The controls necessary make that inevitable."

Provisions made by American business for employee security should be based upon the provision of mutual interests, with both management and employees contributing to the machinery set up, Dr. Bennion continued, so that the provisions established do not smack of charity, and will command full-hearted participation and support.

If American business is to win more converts to its way of thinking, it must rely more upon personal contacts with individuals than upon persuasion directed to the masses through mass media, Robert S. Peare, Vice-President of the General Electric Company, declared.

"The people of this country will never know Business, with a big B, and they'll never like Business, with a big B. But they can know you, and if they do, I know they'll like you," he continued.

Urging his audience to develop "realistic activities on a community basis," the advertising executive said that "all of us must speak for business as we know it, as one man to another, and not as a stilted spokesman before a microphone. It is not what we on the management side of business think that is important, but what other people think about us, what they believe, and what they do as a result of that belief."

Don G. Mitchell, President of the

Sylvania Electric Products, Inc., told the convention that "marketing, rather than productivity, will be the greatest challenge facing American business in the near future."

"Improved productivity will contribute to lower prices, but to move goods, you will still have to sell. The more money everyone makes, the greater will be the sales opportunity," he continued. "Now is the time to encourage your commercial departments to get going, particularly in those markets where you have had little or nothing to sell for the past five years. It takes time to build up sales momentum."

Praising the electric utility industry for "everlastingly improving the quality of service" and consistent rate reductions, Mr. Mitchell urged that "it's time now to take the next step in competitive operations, and give to the commercial departments the same degree of encouragement for top-notch performance that is given to operators and engineers."

At the same session Dr. John C. Parker, Vice President of Consolidated Edison Company, Inc., New York, gave a brief discussion of the World Power Conference and the forthcoming Fuel Economy Conference to be held at The Hague September 2-9 of this year.

Fourth General Session

The chief company executive must give the personnel organization his unqualified endorsement and support, M. H. Frank, Vice-President of the Wisconsin Power and Light Company, declared in opening the Wednesday afternoon session.

Basing his remarks upon a survey of the organizations now set up by representative utility companies for the handling of personnel matters, which was made by a special committee of the Edison Electric Institute, under the speaker's chairmanship, Mr. Frank added that "unless the chief executive is determined that the best possible personnel job be done in his company, and fully supports the department, its work is most apt to be fruitless."

A goal or objective, covering quality of service, rates, wages and working conditions; specifications for each position in the company; an employee training program; grievance procedures, and prompt recognition of unusual ability, are other important features in personnel organization cited by Mr. Frank.

Reviewing the latest engineering and technical developments in the industry, J. W. Parker, President, The Detroit Edison Company, declared that "our most stringent limitation is that of our economic ability to absorb the products of technical and engineering skill into our living.

Describing the progress of the industry in its efforts to give more electric service at progressively lower cost, Mr. Parker discussed the present status and potential developments in extra high voltage transmission, power plants, fuels, cable, electrical apparatus, distribution practice and engineering standards. Opportunities for economical improvement in steam power plant operation lie mainly in better management of fuel combustion, he pointed out. In the case of solid fuels, better proportioning and disposition of the heat exchanger surfaces of the boiler, economizer and preheater, was recommended, as was the choice of a more efficient heat power cycle through employment of higher initial temperatures and pressures.

"Both the management and their engineering staff must cooperate, each according to their capacities, not only to maintain the service at the level most acceptable to the public but also to accomplish this at a price at least as low and, if possible, lower than as if supplied by a potential competitor," Mr. Parker said.

"Increases in productivity have made it possible for the electric utility industry to lower rates almost continuously, but for how much longer can technological progress stem the tide of rising costs?" William F. Ryan, Assistant Engineering Manager of the Stone & Webster Engineering Corporation, asked in his address.

"We may hope that the costs of plant, fuel and labor, which comprise the cost of power, have ceilings—but we know that the selling price has a floor. It cannot go down forever," he warned.

"Perhaps the day is approaching when public utilities must swallow their pride and demand an increase in rates," Mr. Ryan said.

Emphasizing the rising costs problem, he declared that fuel now costs nearly twice its pre-World War II price; operating labor is 5½ times the 1914 figure, and is nearly twice what it was in 1939. "Construction costs are so high that we find it difficult to believe the figures. When we study the costs of a completed project, we instinctively feel that the work must have been extravagantly designed, or badly managed," Mr. Ryan said.

"We have been living in the iron lung of governmental control so long that there are few who could look forward to breathing the air of economic freedom with much comfort or confidence," Dr. Virgil Jordan, President of the National Industrial Conference Board, told the Convention.

Charging that "a vastly more elaborate structure of fundamental governmental controls than this country ever knew before, still continues to operate," Dr. Jordan pointed out that prices, production, consumption exports and imports of many important commodities are still determined by the government, and no material change has been made in its comprehensive control of savings, investments, capital markets and interest rates.

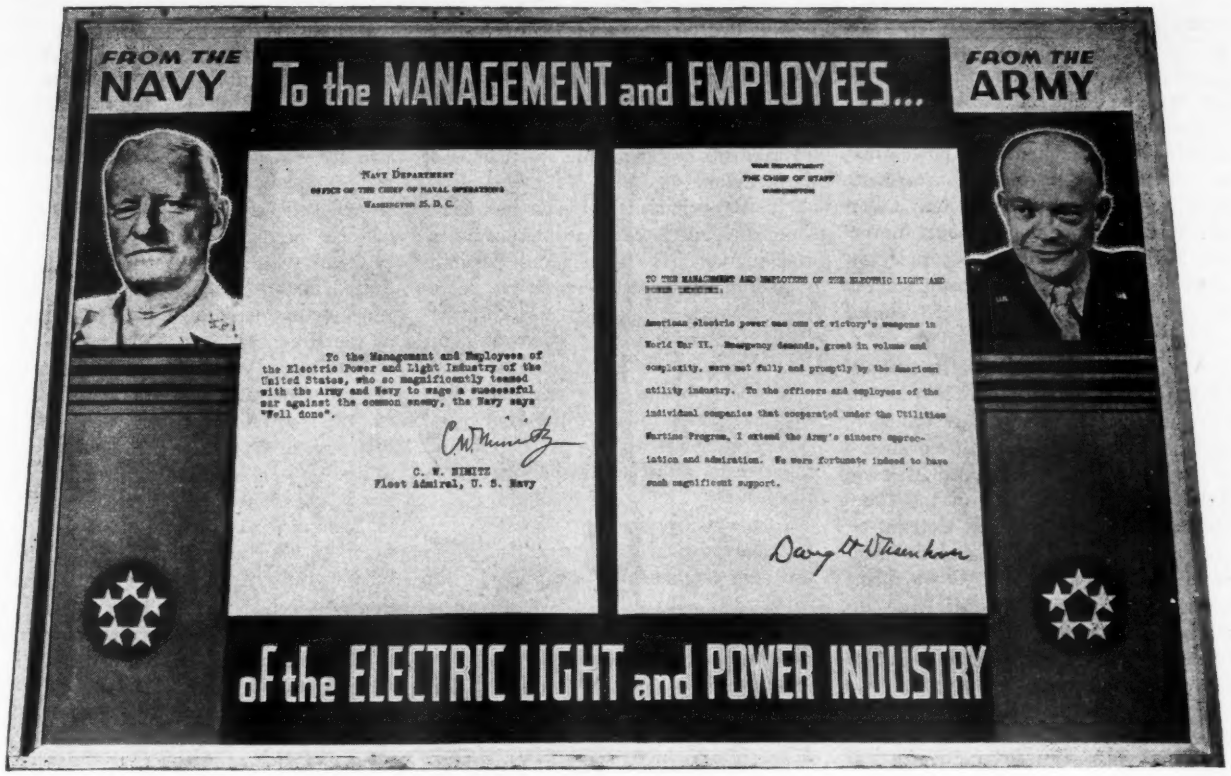
"In certain respects, it can be said that free enterprise in America has become a marginal or fringe activity during the past 15 years," Dr. Jordan asserted. "It is practically impossible to say whether or not agriculture, coal mining, transportation, banking and the production of power and light in the United States are conducted by private enterprise, or operate in a free economy, because all parts of the economic organization have been so penetrated by government controls and private monopoly influences upon wages, prices, production, consumption and investment."

Fifth General Session

Changes in the labor situation, agitation against stream pollution and locations of raw material sources and markets for finished products, are deciding factors in the location of many new industrial plants, the 15th Annual Convention of the Edison Electric Institute was told in the opening address on Wednesday afternoon by H. F. Rech, Director of the Power Section, General Motors Corporation.

In considering locations for many types of factories, studies must be made to determine the reaction of people living in the community, and the availability of suitable labor, he continued. Prior to locating a foundry in central Ohio recently, his company advertised in three different cities to find the number of people interested in such work. Meetings were held with the mayors, chambers of commerce and other civic groups to assure full cooperation, before the site location was approved.

Describing the General Motors usage of utility services, Mr. Rech said that the company now uses 2½ billion kwhr of purchased electricity annually, as compared to about 500 million kwhr only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To the MANAGEMENT and EMPLOYEES...
FROM THE ARMY
NAVY DEPARTMENT
OFFICE OF THE CHIEF OF NAVAL OPERATIONS
WASHINGTON 25, D. C.
To the Management and Employees of the Electric Power and Light Industry of the United States, who so magnificently teamed with the Army and Navy to wage a successful war against the common enemy, the Navy says "Well done".
C. W. NIMITZ
Fleet Admiral, U. S. Navy
THE CHIEF OF STAFF
TO THE MANAGEMENT AND EMPLOYEES OF THE ELECTRIC LIGHT AND POWER INDUSTRY:
American electric power was one of victory's weapons in World War II. Emergency demands, great in volume and complexity, were met fully and promptly by the American utility industry. To the officers and employees of the individual companies that cooperated under the Utilities Wartime Program, I extend the Army's sincere appreciation and admiration. We were fortunate indeed to have such magnificent support.
Dwight D. Eisenhower
of the ELECTRIC LIGHT and POWER INDUSTRY

These tributes to the electric industry from General Eisenhower and Admiral Nimitz, pictured above, were made public at the 15th Annual Convention of the Institute.

12 years ago. The annual cost of utility services is about 50 million dollars, of which about 44 per cent is paid for electricity.

"Rate reductions in the face of high cost levels now prevailing are not generally possible," George M. Gadsby, President of the Utah Power & Light Company, declared in his address, "Research in the field of coincidence factors is exceedingly important, and may well point the safe road to future rate changes."

"Keep on talking about and advertising the value of electric service and the low monthly dollar cost of added appliances and better lighting," Mr. Gadsby advised.

"Today's rate challenge can be safely met only when we take cognizance of the changing meaning of incremental costs, inter-cost component relationships, and the importance of the coincidence factor."

Success of the $4,000,000,000 financing program will depend upon the state of public opinion towards the utility companies, the convention was told by Thomas I. Parkinson, President of The Equitable Life Assurance Society of the U. S. "You have got to show a picture of public belief in your institutions," he declared, if "those responsible for long-term investment of other people's money are to be enthusiastic about putting money into your business."

"The public relations job from this point on is the top man's job," Mr. Parkinson continued, urging his audience to realize that "we can hire men to do every other phase of our business, but the public relations job is on the desk of the top executive. Take that job on your own desk, or get away from that desk."

Britain's electric utility industry, now in process of nationalization, "is to become a permanent asset in socialist power politics," with socialists setting themselves up as the new capitalists, Brig. Gen. Wade H. Hayes, Managing Director of Edmundson's Electricity Corp., London, charged in the final address to the convention, which was read by H. S. Metcalfe, Advertising Manager, West Penn Power Company, in General Hayes' unavoidable absence.

Analyzing the reasons for the nationalization bill, General Hayes asserted that the socialist party continued its propaganda against private ownership through the war years, while the conservative party concentrated exclusively upon the immediate business of winning the war. "This is not an assumption. It is a fact, frankly acknowledged by Prime Minister Attlee," he declared.

The nationalization bill "virtually prohibited propaganda against nationalization" by private utilities, General Hayes charged, by including a clause which "threatened to take from directors' pockets any money spent, which would not have been spent had there been no electricity bill." This interference with individual liberty "savors strongly of the Gestapo tactics prophesied by Mr. Churchill," the General remarked.

Luncheon Session

Addressing the closing luncheon session of the convention, Rear Admiral W. S. Parsons, U.S.N., Navy Director of Atomic Defense, said that "some experts predict that it will be at least a generation before any general use of atomic power can be made in industry."

Activities in atomic energy have reached a point where major future progress is a long-range problem of edu-

cating physicists, searching for ore-producing areas, and coordinating the autonomous projects now underway in this field, he declared.

Atomic power plants to heat communities and generate electric power may be economically justified in areas with little coal or water power, Admiral Parsons remarked, but the distribution problem in these cases will be essentially the same as that of present systems.

Commercial Division Meeting

As the gap narrows between the cost of supplying electric service and the price at which it is sold, more and more will power companies be forced to sell in order to maintain earnings, said Ralph Wagner, chairman of the Commercial Division General Committee, opening the special meeting of the committee Monday morning. That theme of soon-approaching necessity for intensive, creative selling received additional emphasis as each of the scheduled speakers spoke.

Better sales can be realized only by better salesmen, asserted R. S. Bell, Commonwealth & Southern Corp., and better salesmen will have to be paid more money. Salesmen will have to be selected more carefully and trained more rigorously; their enthusiasm and their imaginations awakened.

Production is right up to schedule on practically all parts of the sales helps, instruction books, and other prepared material for the Planned Lighting Program, Harry Restofski, chairman of the Better Light-Better Sight Bureau, told the meeting. By the end of July, all five of the plan books will be in distribution and the Program can get off to an even start all over the country. Supplementing the Program, it is expected that a book on light and sight, prepared in cooperation with the National Education Association for instruction of school children, will be ready by September 1.

Included in the farm electrification job facing the electric utilities are two major considerations, according to Roy Godley, EEI Rural Service Manager, speaking for E. C. Easter, Alabama Power Company. One of these considerations is the utilization of electric service in farm operations, in which a great deal of work remains to be done. But absorption in this task should not be allowed to obscure another matter that very well may be the more important of the two. This is the duty of the utilities to cooperate extensively in the whole picture of agricultural development, soil conservation, stock improvement, crop betterment, market enlargement as well as participation in farm youth movements and all other efforts to raise the economic and social level of farm living.

J. S. Schuchert, Duquesne Light Company, declared that the commercial market has "tremendous possibilities." Generally speaking, he said, commercial load produces greater kilowatthours and revenue per dollar of plant investment, per dollar of operating cost, per dollar of selling cost. He added that the "easy sales" of air conditioning and refrigeration are a thing of the past and that greater effort would be required in the future.

In too many places, commercial electric cooking is like a hefty fullback kept warming the bench by a coach who for personal reasons does not want him in the game, said Grant Parry, New Jersey Power & Light Company. It is difficult to get the wholehearted backing of the industry in the promotion of this class of business, he asserted. Yet commercial cooking can earn 9 per cent on the investment to serve it, and it can be sold at from 30 to 40 cents of sales expense per dollar of E. A. R. It is a most desirable kind of load, with high diversity factor, and the market is now only about 5 per cent saturated.

There was a time not so far back in history as not to be remembered, when residential sales saved the neck of the utility industry, and that time may come again, according to J. M. Stedman, Pennsylvania Power & Light. The catch is that the market will have to be sold.

Engineering Division Meeting

Ways to re-create interest in the 60-cycle engineering of the utility industry among college faculties and their graduates evoked an energetic discussion at the session of the Engineering Division General Committee Monday afternoon.

The discussion brought a motion (unanimously approved) by L. R. Gaty, Philadelphia Electric Company, that the division consider a program to promote a better understanding by college faculty and students of the opportunities for engineering graduates in the electric light and power industry. Several utility engineers expressed concern over the current paucity of such courses and the attitudes of faculties and students alike toward the career appeal of the power business.

J. R. Penniman, of the Baltimore utility, said it was urgent to "put some glamor back into power engineering," and Lloyd F. Hunt, Southern California Edison Company, pointed to the extensive use of electronics by power companies. H. L. Melvin, Ebasco Services, reported that a scouting trip for recruits had not been too successful, partly because of relatively poor quality of the candidates, and partly because of their response to the lure of newer branches of the electrical arts.

Chairman P. H. Chase, Philadelphia Electric Company, had previously called on the several engineering committee chairmen to report on their groups' activities and called attention to the wide scope and penetrating achievement of the committees, separately and in conjunction with the communication and railway utility groups. He pointed out that the comparatively large membership of the EEI engineering committees afforded a superior means of disseminating information and exchanging experiences by direct contact.

In enumerating the activities of the Prime Movers Committee, G. C. Daniels, Commonwealth & Southern Corporation, said the continuous study of turbine outages seemed to show that turbines of recent vintage are no more reliable in performance than earlier types. He said his committee plans to conduct a round table on power plant design aimed at giving due consideration to the newer levels of fuel cost, labor, capital and equipment. The graphitization study has been completed and a remedy is believed assured. Steam contamination will be subjected to basic research, he said.

Wide variety of issues in the transmission and distribution field was attested by the long list of studies enumerated by Chairman L. R. Gaty. Among them were these: aluminum as a conductor, networks, galloping conductors, inrush and load resumption currents, distribution cost to serve increased usage, burning of wood poles, equipment and processes for trimming trees and clearing right-of-way, loading of cables, underground for new residential areas, and experiences with new forms of underground aerial and buried cable.

Analysis of methods of restoring concrete structures, cathodic protection for spillway gates, and maintenance methods, were some of the issues reported by P. M. Lefever, Susquehanna Electric

(Continued on page 224)

The President's Report

By Grover C. Neff
President, Edison Electric Institute

An address before the Fifteenth Annual Convention of the Edison Electric Institute, Atlantic City, N. J., June 3, 1947

YOU MEN and women from every part of the United States, who have traveled to Atlantic City to take part in this 15th Annual Convention of EEI, show by your presence your active interest in our industry and the convention program. We welcome you to the meeting. We hope you will enjoy the program. I do not recall one so potentially fruitful nor one that has been arranged with the needs of our younger people so much in mind. I can say this with all propriety, for the planning of the program and the months of work necessary for its development have not been mine. That has been done by the Convention Program Committee, consisting of Messrs. Phil H. Powers, Chairman, George M. Gadsby, and Chas. E. Oakes. We are all indebted to these gentlemen.

We are also indebted to the management of the Atlantic City Electric Company for the helpful work they have done to make this convention run smoothly.

It is my purpose to discuss briefly the outstanding developments in or affecting the industry, to make some observations in regard thereto, and to recount the splendid work of the committees of the Institute.

A Fast-Growing Industry

The growth of demand for electric service outraces the estimates of even its own boosters. We are part of an industry that has not yet fathomed the limits of its usefulness. The December 1946 peak load for the nation at large and the kilowatt-hour output of that month were well above the highest corresponding figures during the war period, and the present demand continues to run considerably ahead of last year.

Several factors are contributing to this sharp growth of peak load. Industrial activity is at a high level. But many manufacturing establishments are operating only one shift per day, 5 days per week, whereas during the war most of them operated around the clock. This has produced sharper demands on our power systems. The electrification of industry is accelerating, and its influence on the growth of demand for electric power will be felt for many years ahead. The ratio of kilowatthours to manhours in manufacturing (exclusive of aluminum and magnesium production, which have a high ratio of kilowatthours to manhours) has increased 11 per cent since 1939.

MR. NEFF

Another factor is that the cost of electric service compared to the cost of living and compared to the cost of labor is much lower than before the war. The average cost to the user of each unit of residential electricity has dropped 20 per cent since 1939. The public is turning to labor-saving devices and to central station service at a faster rate than ever before in history and is only prevented from increasing its demand still faster by the unavailability of the appliances and equipment it would like to buy.

Capacity to Serve

This rapid postwar growth of load on power systems, before the electric companies have been able to put in operation new generating equipment, although some of this was ordered at the beginning of World War II, has sharply reduced the industry's margin of reserve generating capacity. The margin of generating capacity over peak load in December 1946 was only half as large as this same margin was during the heaviest demands of the war period, and in some localities, on occasions, the load actually caught up with the total available capacity.

The outlook for the winter peak of 1947 is for somewhat smaller reserves than obtained in December 1946 but that the generating capacity will meet the demands of our customers throughout the nation, with possibly a few minor exceptions for short periods.

In 1948 the added capacity should exceed the expected load growth by a considerable amount but will still leave fairly slim margins of spare and reserve capacity in some areas.

In 1949 there will be a further substantial gain in reserve capacity, but it is expected that it will take three or four more years beyond that for the companies to re-establish reserve margins such as our operating forces like to have at their immediate disposal.

Generating Equipment

Because of the war demands for steel products, the War Production Board did not allow the manufacturers of large generating equipment to start filling our orders for such equipment until just a few weeks before V-J Day. Many such orders had been placed before the war but were held up by the government. It was the end of 1946 before the pipe line for delivering turbines and large generators from the manufacturers to the utility systems filled up and began to spill out. Strikes had extended the necessary filling period a few months. That is why the net increase in generating capacity in the entire year 1946 was only 200,000 kilowatts.

In 1947 the electric utility companies expect to add 2,200,000 kilo-

watts of capacity to the 40,000,000 kilowatts of generating capacity they had at the end of last year. They will install about 3,450,000 kilowatts in 1948, about 3,700,000 in 1949, and 1,550,000 in 1950—a four-year total of about 11,000,000 kilowatts. Some orders are already placed for deliveries in 1951 and 1952. The total of unfilled orders of the companies at the present time amounts to 12,200,000 kilowatts. This is 30 per cent of present generating capacity.

The combined total capacity now definitely planned for installation, both by company and governmental power systems, is approximately 16,000,000 kilowatts.

Reserve Capacity

From the foregoing figures, it is evident that the problems of adequate generating capacity arising from rapid load expansion are well on the way to solution. The worries of operating with small reserves of generating capacity which have been ours since last August will begin to diminish in about 7 months, although another 12 months may elapse before they disappear in all parts of the country.

Because of the prospect of rather narrow margins of reserve and spare generating capacity for the next 7 to 19 months, I should like to state two facts. First, the men who operate the power systems really are the big factor in maintaining an adequate supply of electricity to the public. They have developed and constantly maintain a high degree of capable and resourceful teamwork in pooling their information, their capacity, and their reserves. By cooperative scheduling of their maintenance work and by performing miracles in making repairs and keeping equipment in service, they have supplied and will continue to supply the power demands of our customers, even though we are operating with limited reserves. The second point I want to bring out is that the electric utility companies will install additional generating capacity in the spots where it will best serve the public, and they will do it with more speed and skill and at less cost than any other agency or agencies could accomplish it. Not only will they supply all the power requirements of their service areas but they will continue to exert their technical and commercial skill in expanding and promoting, on a sound business basis, ever larger and larger demands for electric power. It is their well-proven purpose and capability to do so. America, in my opinion, has good reason behind its confidence in the willingness and ability of electric utility companies to maintain an adequate supply of power.

I should like to pay tribute to the manufacturers of generating station and main system equipment for the splendid job they are doing in meeting our unprecedented demands for additional facilities. They are giving priority to our power production equipment and are producing 3 to 4 times as much of it as we normally ask them to furnish, and they are doing this somewhat at the expense of materials needed for the manufacture of electric appliances, which are in such demand. It is indeed fortunate for our industry and for the economic well-being of this nation that we have at our disposal the services of such capable, resourceful, commercially aggressive, and far-sighted manufacturing establishments.

The Industry's Comprehensive Rural Policy

Our industry pioneered in rural electrification. It built the first farm electric lines and has always been a leader in that activity. Our industry is definitely committed to a policy of positive action and friendly cooperation until this job is completed. The following is a condensed statement of an action taken by the Board of Directors of Edison Electric Institute in 1946:

In the interest of best serving the public, it is the policy of the Edison Electric Institute, working through its member companies:

1. To promote the extension of electric lines as rapidly as possible, in an efficient manner, to help make electric service available to the remaining one-fourth of the farms of this country that are still beyond existing lines.
2. To foster cooperation betyeen managers of operating companies and officials of rural cooperatives on all matters of mutual interest.
3. To foster the idea that lines to be built should be constructed in each instance by that operating company, REA cooperative, or other agency that is in the best position to build the extension most economically.
4. To advocate that operating companies provide facilities so that cooperatives can buy power in adequate amounts at fair prices.
5. To foster research and development in rural power lines to improve the quality and reliability of rural electric service.
6. To promote within its membership new developments and ideas to increase the usefulness of electricity to the farmer.
7. To join with other national groups interested in farm electrification in the support of research work, to cooperate with and stimulate manufacturers in developing and manufacturing suitable equipment; and to participate in the dissemination to farmers of factual information concerning such new developments.

Nearing the Limit

As of June 30, 1947, 78 per cent of the farms of this country will have electricity available; by the end of 1948 the percentage will rise, on the basis of present private and REA commitments, to 89 per cent. With 95 per cent as the practical upward limit, we can see that the period of large scale farm electric line building is rapidly drawing to a close.

The basis for the above statement is found in the following figures:

Number of occupied farms June 30, 1947	5,600,000
Number of farms to which electricity is available — June 30, 1947	4,375,000
Number to be reached after June 30, 1947	1,225,000
Number beyond practical reach of distribution lines	200,000
Balance to be reached by lines	1,025,000

About half of these will be reached by operating company lines and about half by REA cooperatives.

Of course, there will be another 750,000 farms along existing lines but not yet taking service. Experience, both of electric companies and of REA co-ops, indicates that these will be added slowly over a period of years.

The concept of farm electrification involves much more than just line building. We will miss the entire point of the line construction phase of rural electrification if we fail to think in terms of maximizing the use of electric service once we get it to the farm. We need more electric facilities to serve rural areas, but we also need what amounts to an electric revolution in farm production methods and farm living.

Improved designs for farm equipment, machinery, tools, and other equipment that will efficiently use electric power will be developed only through research. The importance of this research work has failed to receive the attention it deserves, primarily because of the emphasis that has thus far been placed on line construction. Now, as we approach the end of this phase, greater emphasis needs to be placed upon the farm use that is to be made of electricity. When we do that, we will really be well on the way toward completing the job.

Utilities' Improved Standing in Public Opinion

In this country, we are now experiencing a more favorable public attitude toward the free enterprise system, of which the business-managed electric companies are a vital part. The public gives American industry credit for its important contributions toward winning World War II. They know it was the resourcefulness of the free enterprise system that made vital equipment and supplies available in overwhelming quantities. Unpleasant experiences with government controls have made the public see more clearly the merits and benefits of the free enterprise systm. At the same time, American industry has improved its ability and willingness to tell its story to its employees and to the public. This goes for the electric companies as well, and I think it has contributed to our improved position in the eyes of the public.

Free Enterprise

Looking some distance ahead for American business, it seems clear that if the free enterprise system is to continue to be successful, it must provide an opportunity for enterprisers, wage earners, and professional people to earn a good living. With some relatively short interruptions, the free enterprise system has provided this opportunity in the past. In general, living standards in this country have moved steadily upward. This has been accomplished largely through increased efficiency in production. As each worker has acquired more and more mechanical helpers driven by electric or other forms of power, more and more of the things we need and use have been produced per manhour. While these improvements in efficiency of production increased the average income per worker, they also decreased the number of workers required for any given amount of production. In the past, therefore, in order to provide jobs for all, it has been necessary to try out and develop new things that the public could use profitably. The telephone, electric light, automobile, and radio are only a few of the many things that could be named as examples.

Because of these new developments, everybody has had an opportunity to earn a good living. As we continue to improve the efficiency of production, it is necessary that more and more new things be tried and developed so that our standard of living will continue to move upward and everyone's opportunity to earn a good living will endure. If anything is done to slow down this expansion and curtail the opportunity for all to earn a good living, then our free enterprise system will be in trouble.

Strange as it may seem, the most serious threat to the successful working of the free enterprise system comes from government itself. Having had a system under which this country, in a relatively few decades, has become the envy and wonder of the whole world, we now find our government in active and unfair competition with the governed. Complicated, confusing, unnecessary regulation and high taxation of the enterpriser, while tax-financed but virtually tax-free agencies of the government directly compete with him, make enterprise no longer free. Figuratively, they tie one hand of previously free enterprise behind its back. Such unfair competition dulls the enthusiasm of the inventor. Men become less anxious to assume the risks of starting new undertakings, and the whole tempo of free enterprise slows down. It is a most destructive policy, and the results can be very disastrous.

It is not a satisfactory answer to say that government-operated business will provide the same number of jobs as private business would have provided. Because the unfair government competition not only takes over a part of the business operations but also has in it the unfair competitive qualities that will in time do great damage to the free enterprise system.

In earlier days, some over-ambitious enterprisers who had developed large and prosperous businesses would kill competing small businesses by subsidizing the competing situation until the competitor quit. This was not fair or right, so our government properly put a stop to it by passing certain regulatory laws. Now the very government that passed these regulatory laws is doing the same thing it prohibited its citizens from doing.

Our free enterprise system, which has done so much to raise the living standard of the American people, cannot forever endure unfair subsidized government competition. Government competition in business must be stopped, or at least put on a fair basis, if our standard of living is to continue upward in the future as it has in the past.

But the public will not defend free enterprise against the encroachments of established government bureaus unless they are always aware of the advantages of that system. The public attitude is constantly changing. Each year more than two million people in the United States reach the age of 21. If they are to be kept informed about our business, we must keep repeating and repeating, in readily understandable language, our aims and objectives as well as our accomplishments. Only a well-informed public can be fair. We must do well by the employee, by the investor, and by the consumer, and all three groups must be kept well-informed.

The Employee

In a service industry, serving 24 hours a day, 7 days a week, 365 days a year, it is vitally important, if the free enterprise system is to maintain popular favor, that every employee, beginning with the president, be imbued with the spirit of service. This must be cheerful, helpful service, ever thoughtful of the concerns and the viewpoint of the customer. I want to make it very clear that if the free enterprise system is to continue, all personnel of electric service companies, both management and labor, must habitually keep their relations with one another above the plane where governmental authority is impelled to step in to regulate relationships. Both management and labor must maintain an intelligent appreciation of what is fair to the employee and what is fair to the investor and to the consumer. I believe this can and will be accomplished. It can be brought about by diligent and intelligent attention at all times to personnel matters, including careful selection and training. It also requires the free flow in both directions of information to assure the fact that our companies are not only free from so-called labor troubles but that we have cheerful, capable, and intelligent teamwork for serving the customer.

If we are to have that kind of service from our personnel, they must be well paid in comparison with payments for similar work in the same areas, and they must be given recognition for achievements and opportunity for advancement. They must be well informed not only with respect to their particular jobs but about the company's business as a whole, the company's policies, its objectives, its plans and programs. We must take measures to shorten the distance between the head office and the employees in the field to insure that grievances, injustices, or injuries are promptly brought to executive attention and corrected, and that authoritative information spreads rapidly to every part of the organization. The average employee is now subject to many new influences and forces that tend to make him dissatisfied with his lot. This requires increased attention to personnel matters by management. We are to have at this convention a report of a special committee formed to survey company organizations for the purposes I have just outlined. I commend that report to your attention.

It has become increasingly clear that of all the strikes which the American people have had to experience, those which cut off electric service are the most upsetting. The prompt reaction from many quarters has been the desire to ban strikes in public utility industries. If they are banned in these industries, it follows that sooner or later they will be banned in the food, coal, and steel industries and progressively cover the whole field. As a long-range proposition, I question whether the free enterprise system can survive part free and part unfree. Surely we must work out the differences between management and labor in the electric service industry by collective bargaining, and if this is to be successful over a long range of time, it must be sound and fair bargaining which correctly takes into account the interests of the two parties not at the bargaining table—the investor and the consumer.

The Investor's Interest

The free enterprise system falls to the ground without the investor. Capital must be offered what it considers fair wages and fair working conditions, or it is not forthcoming. There can be no compulsion if we are to enjoy the benefits of the free enterprise system. In my opinion, for nearly two decades in this country the investor has had scant consideration from the tax gatherer and inadequate consideration from the labor which it employs. Now let us see how we stand with regard to the investor. Our industry is embarked on a huge construction program which we are carrying forward faster than ever before in history. It will require billions of additional money. The employees and our customers, therefore, as well as company management, have more than usual reason to be concerned about the attitude of the investor. How does our industry appear to those with money to lend?

Attracting Investment

They look beyond the immediate position of an industry and consider its prospects. They can see that the public demand for electricity and the technical and commercial developments throughout the life of the industry have enabled its management, in general, to earn a good return on investment and that regulatory bodies have been generally fair to the investor. They can see that at the present time, earnings are at a high point, but they realize that it is because of the heavy loads on the power systems and because of the narrow margins of reserve to which I have previously referred. At the same time, they realize that for the next several years the companies will be paying very high prices for needed plant expansion, while the price of electricity is continuing to go down. Hence, the companies will have a real commercial and financial problem on their hands to keep earnings sufficiently high to attract the necessary capital. Investors can see that there is a problem ahead for management if their investment in our securities is to be safe in the coming years. It is in the best interests of the consumer and of the average employee that proper consideration be given the investor. We should take the necessary steps to see that our employees and the customers understand this.

For the Consumer

Let us look a few moments at what has been done and is being done by the industry for the satisfaction of the consumer. We have continued to improve the high reliability and other standards of service to the customer. We have furnished adequate power supply, even during the war. About 92 per cent of the occupied homes in America have electric service, and power lines reach another 4 per cent. In a couple of years we will be serving 95 per cent and reaching 98 or 99 per cent.

I have already told you about the rapid progress in extending electricity to farms. The application of electricity on the farm is expanding, electrification in industry is accelerating, and our commercial advisers tell us there is no end yet in sight for the uses of electricity. The average price of electricity to the residential consumer has gone down 20 per cent since 1939. Using 1913 figures as an index of 100, the index number for electric service cost stands at 37, whereas the cost of living stands at 220 and the cost of taxes stands at 430. Data on the hourly wage rate prior to 1933 are not available, but since that date, the average rate has doubled. Thus the electric industry has served the consumer well, but the companies' efforts on his behalf are not stopping with that.

In many areas electric companies are taking a prominent part, along with other agencies, in promoting community and regional business and industrial development, including agricultural development. An increasing number of utility employees contribute time and effort to programs that build up and promote the well-being of the communities in which they reside. This participation is not confined to the top officers, and this practice is to be commended. We should be good citizens wherever we serve.

Taxes that Discriminate Against Utility Customers

Electric utility companies in 1946 paid 19.4 per cent of their gross revenues in taxes, and 11.4 per cent of the gross revenue was Federal taxes. All government power projects and most cooperatives escape these Federal taxes. Since taxes eventually bear their full weight on the consumer, the Federal Government is in fact discriminating against certain consumers of electricity in favor of certain other consumers of electricity. A national government which undertakes to assure "equal justice for all" surely will not long continue this harsh discrimination. The discrimination goes even farther than I have stated, for there is double taxation of security holders of electric companies, whereas the bonds of governmental bodies in the power business are tax-free.

There have been press reports that Congress plans to overhaul its tax legislation and that this would be undertaken when current legislative measures

are out of the way. When Congress undertakes such overhauling, we may hope it will correct the heavy penalty against free enterprise in existing tax laws and will grant equality of treatment.

Contributions of the Institute to the Advancement of the Industry

As President of the Institute during the past year, I have been deeply impressed with the scope, character, and value of the work of its committees. I would not do justice to this large group of men if I did not call their work to your attention and in this way express thanks and appreciation for their contributions to the progress and well-being of our industry. There are too many committees for me even to mention the names of the chairmen. It must be remembered that this industry touches upon many phases of the business and social life of the American people, and from this follows the fact that we have need for many different committees. I am naturally much interested in farm developments, and I think the work of our Farm Section and its committees is greatly to be commended. I have been very much impressed with the work of our Industrial Relations Committee; I think its contributions in the past year have been of very great value. I must comment also with respect to the engineering committees. Ours is a technical business, and our continuing sound development depends on engineering advances. These are going ahead as fast as they ever were, and I commend to your attention the news report we will get later in this convention from President J. W. Parker of the Detroit Edison Company.

Now a word about our commercial committees and why we go ahead with sales promotion. We know very well that we will be faced with the stiffest competition for the consumer's dollar. We also know from experience that we can influence the sale of our services so as to build up load that makes better use of our plant and improves our net income from a given amount of gross business. And we know that market development is a slow, cumulative undertaking. We are, therefore, getting under way now sales programs that will bear fruit months and years hence when we will need all the business we can get to pay our investors a fair return. That is why we have gone ahead with the Sales Training Program and are launching a Planned Lighting Program, and the Electric Living Program; why we are sponsoring in-service training in farm electrification and rural development programs. More than 200 utility companies, as well as 30 non-utility electric firms are using the sales training course.

I must refer to the work of our accounting committees. We are a regulated industry, and this makes accounting even more significant than it would otherwise be.

The work of the Edison Centennial Committee and the work of the Rate Research and Accident Prevention Committees deserve special mention. I must stop now for lack of time, but other committees are doing their job too, and we, as an industry, are in their debt. The Institute has 50 committees on which 600 operating company specialists work on problems of our industry. I commend the progressiveness and far-sightedness of you leaders in making your men available for this committee work. You are fully compensated by the information they bring back to you and by the growth and development that take place in your men who serve on these committees.

In addition to the committee work, more than 200 representatives of this industry work on joint undertakings with other industries. If we, as an industry, are to get the best results for our consumers and for our investors, it is essential that our representatives work together with those of other industries on a wide variety of important matters such as codes and standards, principles and practices, and agreements, allocation of frequency bands, etc.

As an indication of the magnitude of the work of our committees, let me point out that in the year 1946 the Institute sold 1,405,000 copies of reports, pieces of sales promotional material, etc.

During the past year, I have had the honor and privilege of serving you as President of the Institute. However, Col. Bennion and his able staff at EEI headquarters are the ones that make this association operate efficiently and smoothly. They are working hard every day to help us all. We are very much indebted to them.

Conclusion

In conclusion, I offer the following suggestions for your consideration. We are a progressive industry and we want to be known and appreciated as such. The public admires and insists upon progress and it rewards progressive institutions by continuing willingly to buy their services.

While the national surveys and polls indicate that public opinion is more favorable to our business now than it has been at any time during the past 20 years, we cannot afford to rest on our oars. We are up against heavily subsidized competition from governmental proprietary power systems. We must be good to win against such competition. As you know, the power to tax is the power to destroy.

There are in this country groups of people who are doing everything they can to put an end to the free enterprise system and particularly to have the government take over the electric power business.

A growing industry needs the steady inflow of young men. It needs incentive, encouragement for, and development of the able youngsters. Use the Institute committees to develop and broaden your able young men. It will help them grow into larger responsibilities.

If we improve our company organizations by carefully selecting, adequately training, and at all times properly informing our employees, we will greatly strengthen our customers' good will toward us. If, as citizens of the communities we serve, we pitch in and do our best to build up industries and agriculture, and if we work for community betterment, we will merit public good will and in the same process build up and increase our own business.

Union Electric Wins Annual Report Contest

(*Continued from page* 212)

text matter, the illustrations, the graphic charts and the accounting simplification. Special Mention was made of outstanding reports of the following companies: Jersey Central Power & Light Company —"For a beautiful printing job and for its simplicity and layout and charts and good execution of 'pie charts'." Ohio Edison Company—"For its presentation of up to the minute activities in far flung company fashion as indicative of progressiveness of the company's policy to meet today's conditions and build upon them." Public Service Company of New Hampshire—"For the most interesting and pictorial cover of its 1946 Annual Report." Puget Sound Power & Light Company—"For its comprehensive analysis of the whole district that the company served and for the comprehensive manner in which it presented information of value to the stockholders."

Looking To Your Future

By L. E. Osborne
Vice President, Westinghouse Electric Corporation

An address before the Fifteenth Annual Convention of the Edison Electric Institute, Atlantic City, N. J., June 3, 1947

IN my opinion, it is particularly significant that the annual convention of the Edison Electric Institute this year is an *all-electrical industry* meeting.

We've come to realize more and more, through the years, how dependent upon each other are the various branches of the electrical industry—electrical manufacturers, electric utilities, electrical contractors, and electrical dealers.

It has been called our "*inter*dependence upon each other."

So I say that it is both appropriate and *important* that this should be an all-electrical meeting—and the utility industry is to be commended for sponsoring such a get-together.

Naturally, as a representative of the electrical manufacturing industry, I am interested in the electric power industry and its welfare. No one could be more anxious for this industry to prosper than I. And on the basis of past performance, and tremendous possibilities ahead, the future looks exceptionally bright—at least from the viewpoint of one who is not within the utility industry but is closely allied with it.

Look to the Past

Let's look for a moment at the record of this industry—say, over the past 10 years.

Since 1937, installed generating capacity has increased 8½ million kilowatts. Almost 7 million customers were added to your systems. And while generating facilities were expanded only something like 25 per cent, over 75 per cent more kilowatthours are being delivered to customers.

I don't need to dwell on the performance of the utility industry in the war. Everybody knows that electric power was the one major commodity which was never seriously in short supply and which did not require rationing. Probably the most remarkable thing about the electric power industry's war record is that the vastly increased loads imposed by the war were handled with a very small increase in facilities.

MR. OSBORNE

The ready availability—and dependability—of electricity has come to be accepted as commonplace. An executive of a large metropolitan utility not long ago told me that on the modern parts of their system they had only about five customers out of every *1,000* whose electric service was interrupted at any time in a given year. On that basis, this executive pointed out, any one of his customers could expect his lights to go off once in every 200 years. I don't know how much satisfaction that's going to give a man who *won't* be around 200 years to check up on his lights . . . but it *does* indicate that electric service seems close to the ultimate as far as the average consumer is concerned.

Few people realize how much electric power has contributed to the emancipation of American labor. Some statistician has determined that a manual laborer, wielding a pick or grinding a stone, can produce about one-fiftieth of a horsepower continuously for an eight-hour day. I mention this only to point out that by 1950 there should be 7½ horsepower of electrical equipment per worker in American industry. To give these figures a twist, they mean that the average American workman will have at his command the equivalent of about 400 slaves of Pharaoh's time.

Now what about the future of electric power? I believe it has a future that would create envy in many other industries.

Electric power is a growing industry. Its potentialities are great. All about are new fields in which new uses for electric power can be promoted. Even what we might call *old* fields haven't been exhausted. The national average residential use of electric power has approximately doubled in the past 12 years—but some areas have a residential power consumption which *more than triples* the national average. This gives an idea of what still can be done in the residential field.

The war brought many new *industrial uses* of electric power which are only beginning to be exploited. Many of you here today were among those who attended a forum devoted to the "Future Power Market" in Pittsburgh back in 1944. At that time many of these new industrial uses were discussed—such as high frequency heating, infra-red drying, and high-speed electric furnaces. Forecasts of postwar industrial loads were made at that forum which probably seemed fantastic at the time. However, today we find those estimates were very conservative.

"Productive Power"

I might add here that, as you may recall, we gave you at your convention last year a preview of a show called "Productive Power." This was prepared as a traveling show to demonstrate to industrialists some of the new uses for electric power. This show has been held back due to present shortages of electrical equipment and electric power. We hope that both the electrical manufacturing and electric utility industries will be in such position that we can put this show on the road next year. We believe it will be of material value in stimulating industrial use of electric power.

Last year the output of electric power

amounted to 223 billion kilowatthours. With continuation of favorable business conditions, this may reach as high as 300 billion in the next five years.

The electric power industry now is in a period of the greatest expansion in its history. Utility construction budgets will approach a billion and a half dollars—almost 50 per cent more than in any previous year in your history. Almost three million kilowatts of generating capacity are scheduled for installation this year.

Well . . . after hearing all this, some of us may conclude that electric power is a business with nothing wrong with it—no problems, all clear sailing. However, I'm sure this isn't so. You have problems that concern you, just as we have ours. More than likely, your problems and ours are the same.

I'm not going to tell you how to solve these problems, but it may be of mutual advantage to look at some of them. By getting our heads together we may be able to do a lot toward licking them. A study of your program for this convention reveals that you will be wrestling with a good many of them here.

One problem I'm sure is mutual is higher operating costs as a result of increases in wages and salaries and in the cost of materials. All industry is being challenged to increase production and reduce prices when costs of operations have been steadily increasing.

Sales Problems

This situation is aggravated by the fact that labor costs, particularly in manufacturing industries, have risen without a corresponding increase in efforts to produce.

What many of us did in the transition from war to peace was to pay labor in advance for production and effort which did not materialize. We—and I'm talking about the country, not only about my industry—have paid ourselves wage increases for an increased volume of output that has not yet been produced.

To cope with this situation, we have to expand our facilities and seek further mechanization in order to handle the larger volume of business necessary to cover increased costs.

To continue to get this higher volume of business, we must begin to strengthen our sales organizations. All branches of the electrical industry are going to have serious sales problems when present expansion programs are completed. We are rapidly going from a sellers' to a buyers' market, and all sales organizations must be geared for this change. Also, we must appreciate the fact that it takes at least two or three years to train a salesman to the point of real effectiveness.

Atomic Power Development

Engineering is another field to which we must direct our attention. In your business, as in ours, engineering is an increasingly dominant factor. We must prepare for a technical future which we can see only dimly at the present time. For example, we know too little today of the possibilities of atomic energy. We do know enough, however, to predict that it *will* have a definite place in *our* business and in *your* business. Therefore, we must have people who are able to deal with this new source of energy. Few men are available who have the knowledge and experience to cope with such basic problems as construction and the simple handling of material in connection with atomic power development. They must be trained and developed.

You are just as well aware as I am of the all-around importance of employee relations as industry continues to grow and to meet new personnel problems. The field of industrial relations is especially important to you of the utility industry because you provide an essential public service; and serious labor problems, especially those involving a threat of work interruption, are of immediate concern to the public.

We all recognize that many things and many forces in recent years have influenced the public against large corporations in general and utilities in particular. Too many citizens of this country feel they would get more for their money if industry were owned and operated by the Government. It is our job to convince the public that this isn't so. The utility industry has already made great strides in the field of public relations and in informing the public of its contributions to their welfare and to their standard of living. But much remains to be done. This field needs the best thinking you can put into it.

Looking back over these problems I've touched on briefly, one thing stands out. It is the need for *talent*—the need for the best men—in management, in engineering, sales, employee relations, public relations, and in other key spots—not only for today, but for tomorrow.

This brings up the *real* problem—where are we to get the best men to fill key positions, to fill your place and my place and the places of others in the ranks of management, and to bring us new knowledge, new skills, new techniques?

For the most part, I would say, these men today are the students in American colleges and universities. Because we are a technical industry, most of them are in engineering schools.

And here's something which I feel should be a matter of some concern to the electric power industry. From our own experience we've found evidence that too few of these young men are being attracted to the electric power end of our business.

Each year we normally employ several hundred graduate engineers from schools throughout the country. After he is employed, the graduate engineer takes a training course which lasts approximately a year. During this training he orients himself and decides which of the various branches of our business he wants to go into.

We have found recently that there has been a serious falling off of interest on the part of these young engineers in power equipment. There is no difficulty in interesting them in electronics, in nuclear physics, in communications, and in other more "glamourous" fields—but there is less interest in the field of electric power.

Young Men in the Power Field

Electronics, communications, nuclear energy, and similar fields are very important. A company like Westinghouse must direct a considerable part of its activity into these fields. But production of equipment for the central station industry is still the largest component of our business and utilizes about one-third of our productive effort—to say nothing of utilization equipment which uses the power produced by the utility industry. There is much to be done in developing better and cheaper power equipment, and trained men to do the development work will be required.

Our educational people, who keep in touch with colleges and universities, tell me that some of the schools who offer specialization in the final year of an engineering course also are having difficulty in interesting young men in the power field.

With constantly expanding horizons, your industry—and ours—must have an adequate share of the young technical men of the country to carry on enlarged

activities of the electric power business.

We have launched certain programs which we believe will help solve the problem. Through the Westinghouse Educational Foundation, we have established several fellowships in power system engineering at technical schools. We believe these fellowships will encourage outstanding men to enter the power field. These advanced students in power systems, we've found, are good salesmen among younger students. In one school the first fellow was elected a year ago. He was the school's first graduate student to specialize in the subject. Today, *seven* students are taking this advanced work in this one school.

Westinghouse also has become interested in the establishment of several regionally sponsored power system calculating boards which will solve some of your technical problems and allow engineering students to carry on advanced study of power systems. Several of these calculating boards have been installed and others are under construction.

These calculating boards will bring engineering students into close contact with some of your systems, revealing to them that there are still many intriguing problems in your industry.

We've also made available suitable equipment to encourage the establishment of up-to-date power plant laboratories in a number of schools.

Through a summer program for professors, we are helping engineering teachers keep abreast of developments in the electric power field.

And this fall we hope to do even more. My company is planning to open a special training course for young utility engineers.

The course will last about eight months and will be designed to give the young engineer who is entering the electric power industry basic training in manufacturing, engineering, and application of electric power equipment. Most of the course will be similar to the training we give our own graduate students, but the last part of the course will be devoted to an intensive program on central station engineering.

The first group will be limited. We will include a few young engineers from each section of the country. From our experience with this first group we hope to develop a pattern whereby we will be able to train more men for you.

Electrical manufacturers, of course, can only aid in the solution of the problem of keeping a steady flow of new and better talent into the electric power field. Any general program to tackle it must be developed by the electric utilities. One suggestion I might make is to have a prospectus of the light and power industry prepared and presented to every interested student. This, at least, would help the young engineer to evaluate the industry and compare it with those industries now attracting engineering students because of glamorous publicity.

Some might feel that a company hiring relatively few students cannot afford a program. Our people believe a training program can be designed for any company, large or small, that will adequately meet its needs. I've emphasized the need for engineering talent because it is so scarce, but what I've said on finding and training the best men applies to other fields, such as sales, administrative, and public and industrial relations.

This we must remember—that the true value of a great industry or business is not represented by bank statements, superb machinery, the efficiency of its plants, or the brick and mortar which make up the buildings. The greatest asset in any business is its people—and more particularly, the men who occupy the key positions and keep the business alive and progressive.

In-Service Training Program for Agricultural Workers

A TRAINING PROGRAM in farm electrification, especially prepared to give agricultural extension agents, agricultural teachers and rural electric service organization personnel practical information about profitable uses of electric service on the farm, has just been released by the Edison Electric Institute.

"As we near the completion of the big job of building rural electric lines, more and more farmers are raising questions as to how electricity can best be employed in their farm operations," Mr. Neff explained. "This course," he said, "is designed to supply the leaders with practical data on farm electrification needed to answer the farmers' specific questions."

The Institute's training program, as presented in a comprehensive manual, consists of two days of instruction. A complete schedule, with a detailed outline of the subjects recommended, and ample reference material for the guidance of those preparing the course, is included in the manual. "Local conditions may, in some cases, warrant a more extended course, and the EEI program is adapted for ready expansion to a greater length, if desired," Mr. Neff said.

"The training courses using this program," he continued, "are expected to be arranged either on a state-wide or a county-wide basis." It is expected that the courses will be held at agricultural colleges and experiment stations, where suitable facilities are available, and will be sponsored jointly by the colleges, agricultural agencies, rural electric cooperatives, power companies and others.

Among the subjects included in the Institute's program are: the present status of farm electrification; basic fundamentals of electricity; wiring and re-wiring for the farm; lighting; water systems; home appliances; electric rates; freezing equipment; electrical equipment for poultry and egg production, dairying and feed and crop processing; electric motors. The manual presents detailed information on many of these subjects, and a list of additional pertinent references is provided to aid those teaching the course.

People who could derive and transmit great benefit from the study, according to Mr. Neff, include county agents; home demonstration agents; agricultural extension specialists; teachers and supervisors of vocational agriculture courses; home economics teachers; farm service managers, home service representatives, commercial managers, and district managers of electric power companies; rural electric cooperative managers; district soil conservation workers, and personnel of the Farmers' Home Administration.

Bringing more electric service to rural areas will hasten a number of favorable changes within those areas, Mr. Neff predicted. "A substantial improvement in rural living standards, the substitution of electric power for manual labor in many farm tasks, and the building of more rural homes, can all be expected," he said. "Recognizing the need and value of these rural changes, all agencies conducting educational and research work should make every effort to assist in wider application of the knowledge and use of electricity on farms and in farm homes," he declared.

Copies of the manual are available at $1.50 each.

The training program was prepared by a committee consisting of representatives of agricultural agencies, and the Farm Section, Edison Electric Institute.

If Only We Had Faith

By Elmer L. Lindseth
President, The Cleveland Electric Illuminating Company

An address before the Fifteenth Annual Convention of the Edison Electric Institute, Atlantic City, N. J., June 3, 1947

BECAUSE this convention is keynoted to the younger men in the electric utility industry, I have been asked to talk about the future of the industry and the opportunities which it offers to young men. But while my remarks are thus *for* the younger men in the industry, they are directed mainly *to* the senior executives who are here today.

I am convinced that the industry can have a brilliant future. Whether it will have a brilliant future depends on what we do—on what you and I do—about preparing for that future. The industry's opportunities for service and growth are virtually unlimited; so I want to explore with you whether, as an industry, we are doing the things necessary to make the most of these opportunities.

First, let us consider the possible growth of the industry, and project its size into the future.

Second, let us examine the industry's present and future needs for executive manpower.

Third, let us explore whether the industry is offering adequate incentives in compensation and recognition—whether it is providing sufficient opportunities for development and advancement, and whether it is currently doing an adequate job of attracting young men.

To set our sights on the size of the job ahead, let's take a look at the industry's progress during the past 30 years. This is approximately the average period during which its present top executives have served it. Then let us take a look at the next 30 years, during which a new generation of executives will take over.

The Past

Within the lifetime of a man who is only 65 today, the art and science of electric service has grown from a laboratory experiment to become—next only to air, water, food, shelter and clothing—the prime necessity of modern life.

You—the industry's present leaders—have made a vital contribution to human progress. And the great business which you have fostered is still growing at a record pace.

MR. LINDSETH

Exactly 30 years ago this week, the young men of the nation were registering for the draft in World War I. It was still difficult to convince people that their homes should be wired. Electric washing machines, cleaners and other appliances were being pioneered and installed on a trial basis.

Many more young men were in top positions in the industry then, than today, yet only a few of these men are still active. Most of you who at present are top executives were coming up through the ranks.

Let's try to visualize the residential customer of 30 years ago. He paid an annual bill of about $20, used 22 kilowatthours a month, and paid more than 7½ cents per kilowatthour.

Today's customer uses five times as much energy—and pays less than half as much per kilowatthour. Yet the use of electricity is really only beginning.

The extent of the industry's growth over the past 30 years is shown in Fig. 1. In 1916, the people of the country used 18 billion kilowatthours. Last year, they used 191 billion, more than 10 times as much as they did 30 years before, and nearly 3 times as much as they did 15 years before.

The Future

Long-range forecasting is both difficult and inexact, particularly in a growing industry like ours. So instead of forecasting the industry's growth for the future I have merely projected its size on the arbitrary premise that the rate of growth in the next 30 years is one-half that of the past 30 years.

Please note this premise carefully. It is arbitrary. It may be unimaginative. But the results are astounding.

The primary projection was made in kilowatthour sales, as illustrated in Fig. 2, showing the growth curve to logarithmic scale. Fig. 3 shows the results of the projection to rectangular coordinates.

In 1946, the kilowatthour sales in the country were 10½ times those of 1916. If by 1976 they are 5¼ times the figure for 1946, the nation will be using a total of 1000 billion kilowatthours annually.

That is, if the industry grows in the next 30 years at one-half the rate it grew in the past 30 years, annual kilowatthour sales in 1976 will be 1000 billion kilowatthours. We shall be into a new series of numbers—producing and selling one trillion kilowatthours annually.

Figs. 4, 5 and 6 show that, by corresponding projections, the 1946 revenue of 3½ billions of dollars may grow to 14 billions by 1976; the present plant capacity of 50 million kilowatts may reach 250 millions; and the 16-billion-dollar property and plant account may grow to 80 billion.

In brief, as an industry we may be four or five times as large in 1976 as we are today.

Our nation has become used to talking in terms of billions, but the projected total of 80 billions in plant and property is a tremendous one. It exceeds by 10 billion dollars the total 1941 assets of all manufacturing corporations in the United States.

My reason for presenting these projections is only to indicate that even if we grow at one-half the rate in the future

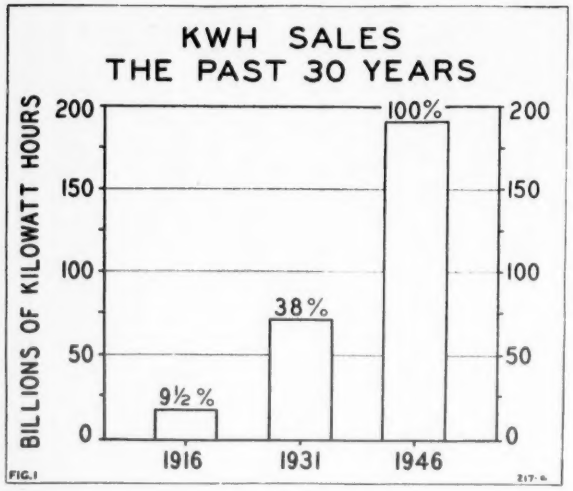


Fig. 1—U. S. Annual Sales of Electricity Increased 10½ Times From 18 Billion Kwhr in 1916 to 191 Billion in 1946.

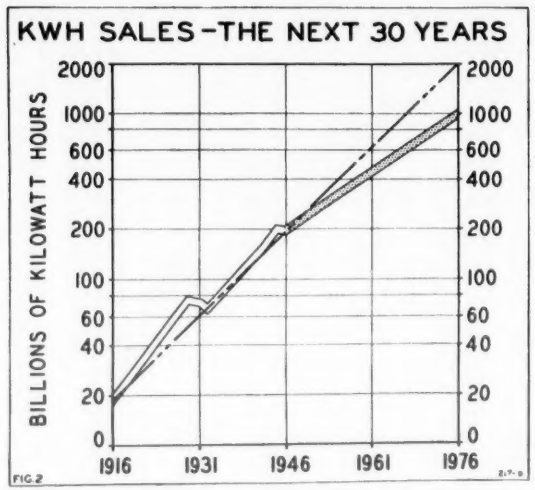


Fig. 2—Rate of Growth of Annual Kwhr Sales (Dot-Dash Line) Projected 30 Yrs. Ahead on Logarithmic Scale, Assuming Future Increase Only One Half as Much.

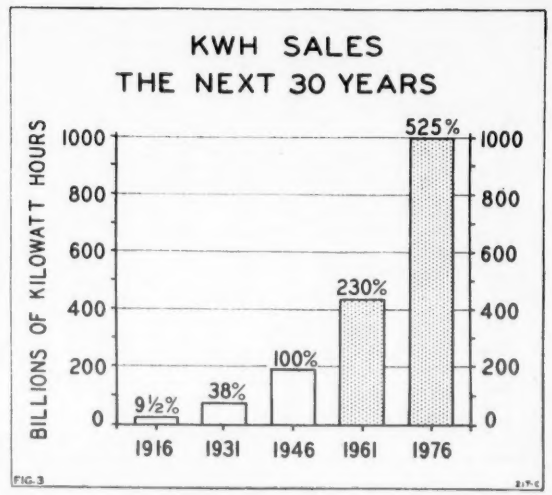


Fig. 3—Rate of Increase in Annual Kwhr Sales From Fig. 2, in Percent of 1946 Sales. At One Half of Past Rate of Growth, 1976 Sales Will Be One Trillion Kwhr

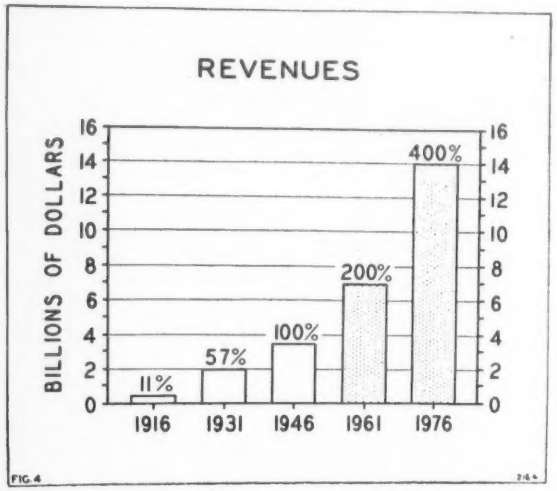


Fig. 4—Gross Revenues From Electric Power at One Half Former Rate of Increase Will Reach $7 Billion in 1961, $14 Billion in 1976.

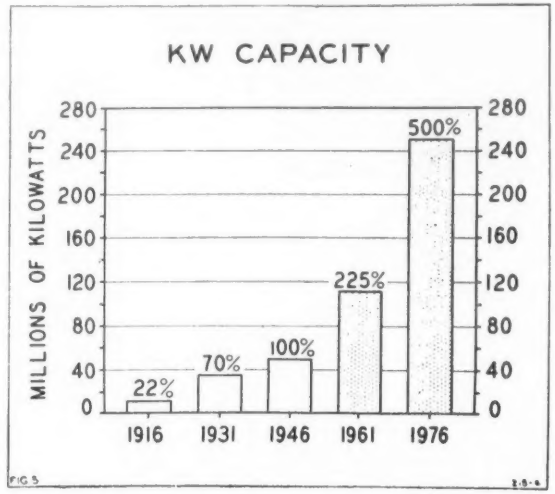


Fig. 5—Generating Capacity Will Increase 50 Percent to a Total Installed Capacity of 250 Million Kw in 1976, If Kwhr Sales Continue at One Half Former Rate of Growth.

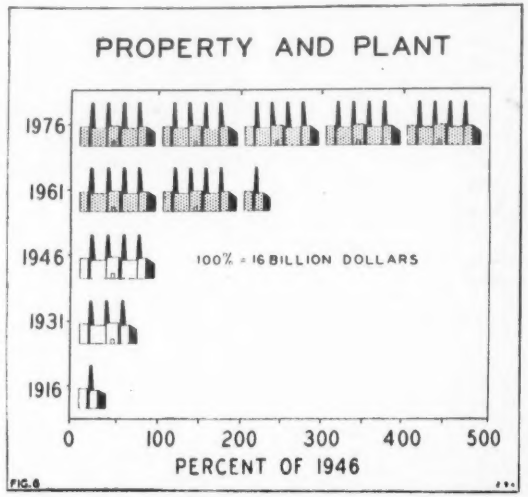


Fig. 6—Total Investment in Property and Plant Will be $80 Billion in 1976, If Kwhr Sales Increase at One Half The Rate of The Past 30 Yrs.

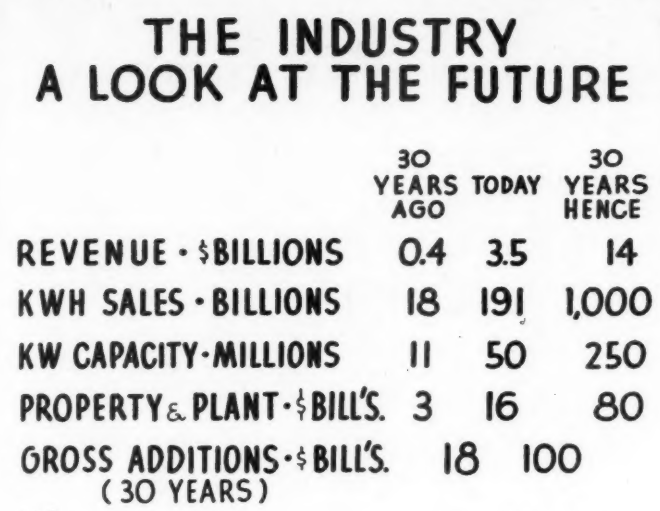

THE INDUSTRY
A LOOK AT THE FUTURE
30 YEARS AGO
TODAY
30 YEARS HENCE
REVENUE · $BILLIONS 0.4 3.5 14
KWH SALES · BILLIONS 18 191 1,000
KW CAPACITY · MILLIONS 11 50 250
PROPERTY & PLANT · $BILL'S. 3 16 80
GROSS ADDITIONS · $BILL'S. (30 YEARS) 18 100
FIG. 7

Fig. 7—Summary of Growth in Electric Power Industry in Keeping With a Projected Rate of Increase of Kwhr Sales One Half That of The Past 30 Yrs. New Construction for Replacement and Expansion Would Cost $100 Billion.

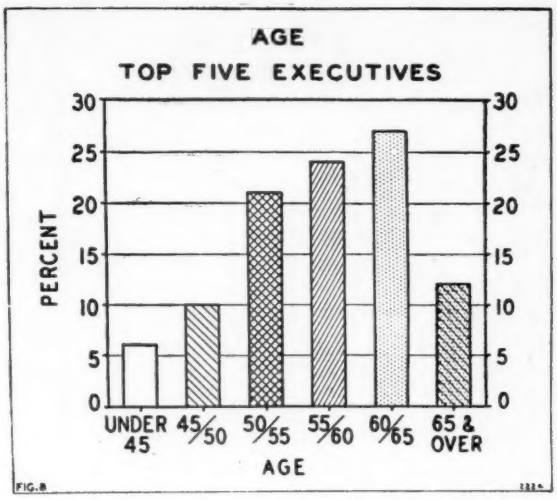


Fig. 8—Survey of Age Distribution of Top Executives From 64 Electric Utility Operating Companies Representing Half The Industry on a Gross Revenue Basis.

that we have in the past, we can still get mighty big in a hurry. And today, the industry is in the midst of its greatest expansion.

As all of us have learned, growth has a compounding effect on the complexity of our business—in personnel problems, in demands for specialized personnel, in technological requirements, in financing, in regulatory problems, and in public relations techniques for portraying the industry as the great American asset which it is.

The size our industry may attain in these next 30 years if future progress is half that of the past is summed up in Fig. 7. Note that new construction for replacement and expansion during this time will take the amazing total of 100 billion dollars!

Tomorrow's Executives

To guide this prodigious industry of the future, with its complexities and its new problems, will call for leadership of the highest order on the part of young men now rising in the industry, and other young men yet to be hired who are today being trained in the nation's colleges and universities.

The job of providing executives for this or any other industry is a broad one. To obtain statistics of use to you in sizing up this job, a survey of executives was made among operating companies each having revenues of 10 million dollars or more annually.

The survey covered 64 electric utility operating companies representing approximately half of the industry on a gross revenue basis. The sample represented a large part of all of the companies whose annual revenues last year were 10 million dollars or more and whose organizations are self-contained and complete.

The questionnaire asked simply the size of the reporting company, based on gross revenues; and the age, years of service, and compensation of five highest paid executives in each company.

Some results of the survey, based on a 94 per cent response, are shown in Fig. 8.

The survey found that the average age of an electric operating utility executive who is among the top five men in his company is 57 years. One in eight of these executives is 65 years old or older; 40 per cent are 60 or over; two out of three are 55 or over.

In the entire sample of more than 300 executives, there are only two who will not be retired within the next 30 years under normal retirement procedure. Only 6 per cent of the top operating executives of the industry are under 45 years of age.

And since 85 per cent are 50 years old or over, their normal replacement may be expected within the next 15 years.

Within these 15 years, half of the nation's operating companies must replace their top 5 men; and more than 9 out of 10 of the other companies must replace a majority of their top five men.

Thus, the younger men now in the industry and those to be hired in the future are presented with real opportunity.

The executives who will be directing this giant industry 30 years from now will come from the ranks of either today's youngsters or newcomers. The future of the industry will depend on these young men; and if our progress is to continue, they must be exceedingly good men.

I am not unmindful of the great need and opportunities for men who can adequately discharge second-level and third-level responsibilities. Finding and developing these men is a pressing industry problem.

But solely to limit the scope of my remarks, I confine myself today to the need of the industry to find and prepare men capable of taking over *top* responsibilities.

Are we doing an adequate job of building these executives of tomorrow? Are we attracting and holding men of sufficient caliber to assume the responsibility of leading the industry 15 years from now, and 30 years from now? Are we recruiting, selecting, developing, and training our future executives, and are we stimulating them sufficiently to give them the vision and the spirit which they must have?

The answer, of course, is that many companies are doing a splendid job in these fields. New and improving techniques are being used, many capable younger executives are on their way up, and new plans for attracting and developing additional manpower are being worked out.

But each of us must ask himself, "Is my own company adequately prepared? Are we as an industry providing ade-

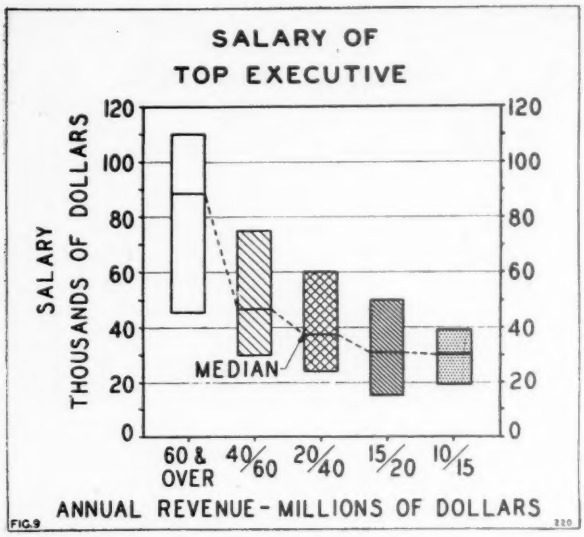


Fig. 9—Survey of Salaries Paid to Electric Utility Operating Company Executives in 1946.

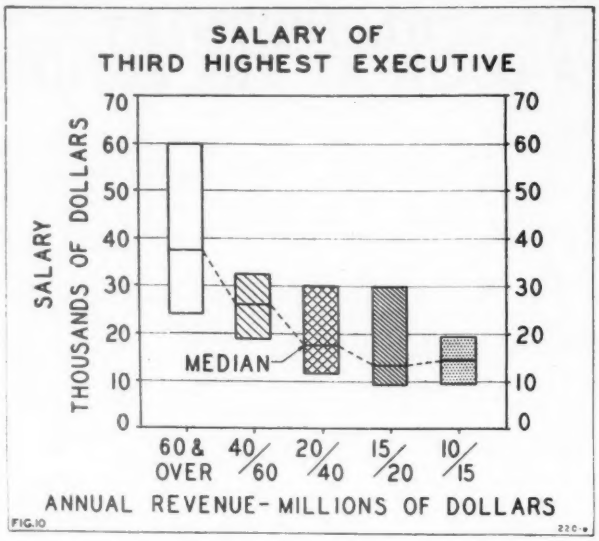


Fig. 10—Survey of Salaries of Third Highest Paid Executive in 64 Electric Utility Operating Companies for 1946.

quate incentives, in view of the urgency of our needs? Are our present methods for developing new men adequate for the magnitude of the job?"

Incentives

As you know, there are countless incentives which make a man prefer one job to another. But men generally work for three broad incentives—opportunity, recognition, and security.

Most of the world's progress has come from men who placed opportunity above security in their daily lives. This is particularly true of the men who made the electric industry great.

The nation and the world are this year observing the 100th anniversary of the birth of Edison. But if Edison had placed security above opportunity, he might now be long forgotten.

In 1879, a dollar was worth considerably more than it is today. Yet by the time young Edison was 32, he had poured $40,000 into the experiments which resulted in the development of the first practical incandescent lamp—an achievement which a goodly number of security-minded contemporaries had assured him was impossible.

This is the heritage of our industry. Edison and the pioneers who followed him had the courage and the vision to risk their time, effort, and money in the hope for reward. They saw big opportunities, took big risks, obtained big results, and big rewards.

Are we providing the necessary incentives today to attract the necessary talent of top executive caliber to our companies?

To find out, two things were done. First, we surveyed the industry itself, to determine what incentives it offered, salary-wise; and second, we surveyed the nation's colleges and universities, to find out what young men think about a career in the industry.

The results were harsh and unflattering, but they were sincere and significant.

Many of the replies pointed out that opportunity for earning high compensation is a major factor in the selection of careers by the most desirable students. Yet an evaluation of the replies which mentioned compensation indicates that 27 per cent disclosed an unfavorable attitude toward the electric utility industry.

The universities simply told us that salary levels of the industry's principal executives are low in comparison with the levels in many other industries, and that many able students are ignoring the industry as a result.

Two-thirds of the replies declared that the outlook for advancement and ultimate opportunity in the electric industry is considered discouraging or unfavorable by comparison with other industries.

Possibly these arguments may be refuted. But the important fact is: *the best prospects for potential executive manpower think our industry offers them too little opportunity.*

In a 1935 analysis of the salaries of executives of over 400 corporations, Messrs. Thorndike and Beckwith of Columbia University* concluded that "public utility salaries are very low." The study pointed out that public utility "top salaries and second salaries are only three-fifths those of the general run of companies of equal magnitude (excluding railroads and public utilities)."

This study was carefully made by qualified observers. And they found, let me repeat, that public utility top salaries and second salaries are only about three-fifths those of the general run of companies of equal magnitude. Yet the men who receive these salaries are those on whom the present and the future of this rapidly growing business depends.

An additional study was made last month to determine whether the facts found a dozen years ago by Messrs. Thorndike and Beckwith still held good. The 1947 survey covered the top five executives of 119 corporations in nine major industrial groups.

Results indicate that executive salaries in non-utility companies with comparable annual sales are on the average about 70 per cent higher than those paid by public utility companies today.

The Thorndike-Beckwith study is even more significant when coupled with a 1940 study of executive salaries made by Professor John C. Baker,** at Harvard Business School. Professor Baker concluded that:

"If adequate financial and other rewards and incentives are not furnished, economic and business historians may not only point to

* "Salaries of Executives," by E. L. Thorndike and B. P. Beckwith, *Personnel Journal*, March, 1937 (pp. 312-320).

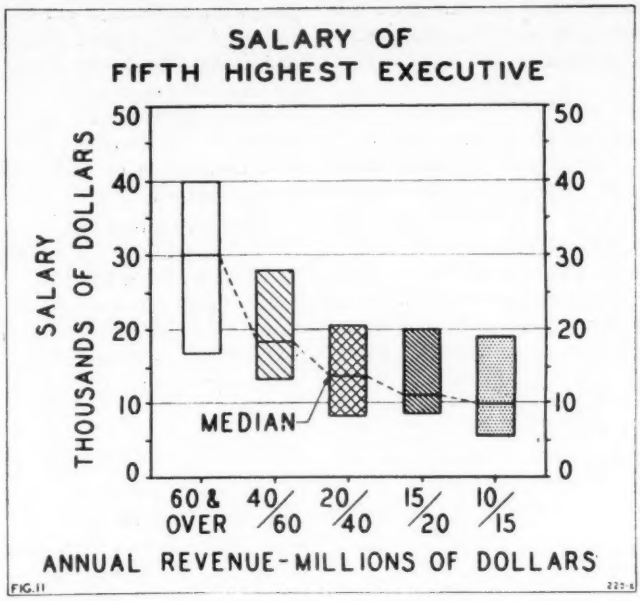


Fig. 11—Survey of Salaries of Fifth Highest Paid Executive in 64 Electric Utility Operating Companies for 1946.

this period as one of controversy over executive salaries, but also as one marked by a failure to insure adequate recruiting of the leadership which is vital to private enterprise."

Compensation

Results of this year's survey of executives in the 64 electric utility companies replying to our questionnaire are shown in Figs. 9, 10 and 11, which indicate the ranges of salaries paid by these companies to their top five executives.

The salary of the chief executive of a company whose annual revenues are from 10 to 15 million dollars may range from $20,000 to $40,000. Among companies whose revenues are from 15 to 20 millions annually, the salary range is from $15,000 to $50,000.

That is, one chief executive may be paid one-half or one-third as much as another for a job of comparable responsibility.

In the group of companies whose annual revenues are 20 to 40 million dollars, salaries for the top executive range from $24,000 to $60,000. In the 40 to 60 millions revenue group, salaries for the chief executive range from the $30,000 to $75,000. And in the group of companies whose annual revenues are 60 million dollars or over, they range from $45,000 to $110,000.

In the sound interest of our customers, employees, and stockholders, the industry must provide good top executives. To attract such men in sufficient number, the industry must pay them adequate and competitive salaries.

For the purpose of this study, it is unnecessary to establish what level is adequate and competitive. But from the figures, the conclusion is self-evident that the range for jobs of comparable responsibility is very great and that certainly in many companies—if not in all of them—salary levels of the chief executives are low.

A study of survey results covering the fifth highest man in each company yields similar conclusions.

The median salary of the fifth highest paid man in companies with annual revenues of from 10 to 15 million dollars is less than $10,000.

A man who works for a major electric utility company and reaches a position which places him fifth in his company, salary-wise, may earn as little as $5400 a year—or he may earn as much as $19,000 in another company of comparable size. And such companies each have responsibility for 50 or more millions of dollars of property, service to 100,000 customers, and the welfare of 1000 or more employees.

Companies whose annual revenues are 40 million dollars a year or above comprise only a fourth of those covered by the sample. But only among companies of this size does the fifth highest man in each company receive $10,000 a year or more.

The salary of the fifth highest paid executive in a majority of the companies which we surveyed is often at a level which provides for little advancement of the men next in line.

Compensation for men handling intermediate responsibilities is highly important in the industry, yet today must be sandwiched between the comparatively low level of the fifth highest paid man and the top pay received by skilled labor. Too often, this sandwich is very thin.

An examination of the proxy statements of the larger American corporations outside the utility field indicates that in each of a number of these there are more $20,000-a-year men than there probably are in our entire industry.

So there is good reason to ask ourselves, "Is the industry offering sufficient compensation to attract, encourage, and develop top caliber young men who in 15 years can lead an industry over twice as big as ours is today?"

If intermediate salaries are as low as the survey indicates, might not the indictment be valid that advance and salary at intermediate responsibilities are too meager?

Recognition

Fortunately many companies in the industry have their own "acres of diamonds"—dozens of younger men who possess a sound knowledge of the business and are eager to work hard for its future and their own.

But these able young men must constantly be provided with new responsibilities and enlarged opportunities. They must be trained in leadership. And their talent must be recognized through steady advancement, increased standing, and compensation in line with their development in merit.

Recognition of this type is vital if these men are to be adequately prepared in sufficient number to replace the large percentage of top executives who will retire within a comparatively few years.

Younger men must be encouraged to participate in professional, industry, and community activities, so that they may develop qualities requisite for growth and development, acquire recognition and prestige, and assert influence and leadership.

Their efforts in this field are invaluable in winning new friends and new prestige for the companies they serve, so that additional men of top caliber will want to work for those companies.

It has often been said, and wisely so, that man doth not live by bread alone. And it is also a business axiom that to

** "Payments to Senior Corporation Executives," by John C. Baker, *Quarterly Journal of Economics*, November, 1944, (pp. 170-184).

obtain good men, a company must have a good reputation.

Each executive may well ask, "Is my company building its own reputation and the industry's reputation through outstanding community and civic service so that men are proud and glad to work for the company?"

Fortunately, many companies are doing a fine job. The industry has been among the first to recognize that a company can best build its own business by helping to build the area which it serves.

But we may properly ask, "Are enough companies pursuing programs for community service in the area they serve —in order to provide recognition and opportunity for the young men in the industry, and attract new men to it?"

Security

In the field of security we are providing plenty of incentive—possibly too much.

Our survey of colleges and universities found that students consider the electric utility industry's stability and security to comprise its major recommendation. The security of employment was cited in 54 per cent of the replies as the feature which most often sold the industry to the student.

It is a fair question to ask, "Are the young men who look for security first, and for opportunity second, the right men to inherit the leadership of our industry?"

The placement manager of one of the nation's largest universities wrote, "Some applicants have complained that employment with public utilities has some of the less attractive features of Civil Service without the compensation scale."

We may well examine the policy of traditionally promoting from within. This policy is vital, but should not be blindly followed if no one in an organization is adequately qualified to step into a position that becomes vacant.

Is there too much inbreeding in our business? Are we cultivating a slavish devotion to pensions and security, rather than a constant seeking for opportunity? We can best help ourselves by facing these questions squarely.

In brief, an examination of the industry's incentive shows that we probably are not providing adequate financial reward for executive manpower. As a corollary, neither are we providing adequate recognition and prestige.

But we certainly are providing adequate security, and we may well ask ourselves whether we are not putting too high a value on it.

Recruiting

The industry which makes the most favorable impression on a young man of top executive caliber, during his formative years, is in all probability the one which he will choose for a career.

To attract a young man of this type to our industry, we must make a better impression on him than the many other industries which also are seeking young men. For example, a number of industries have been advertising in high school and college papers for many years; and intensive new campaigns to mold the opinion of youth are planned by additional industries, including the glamorous new ones.

Therefore, we might logically ask ourselves, "Are we doing a good job of molding the opinion of the nation's best young men? Are we giving them faith in the future of our industry? Are we adequately selling them its advantages?"

An attempt to find the answers to these questions was made in the survey on the attitudes of college students toward the industry. Once again, the results are not encouraging.

It is significant that 85 per cent of the replies indicated the electric utility industry had made little or no impression on young men before and during their high school days. And 63 per cent of the replies indicated that the industry had made little or no impression on young men during their college years, while 40 per cent indicated that no impression had been made by representatives of the industry during the important period immediately preceding graduation from college.

An engineering school dean—in his answer to the questionnaire—points out that prior to 1925 the industry was in the forefront of those considered by graduates in deciding on a career. But he pointed out that the picture has changed completely, so that now the industry is seldom considered.

A number of colleges said that several representatives of electric utility companies visited their campuses annually, but 25 per cent of the replies stated that no representatives of the industry had visited their campuses either this year or in prewar years.

This is in sharp contrast to the fact that 400 non-utility companies sent representatives to interview the 100 men in the graduating class of one eastern engineering school this year. At a number of engineering schools, the demand for the graduates was reported to be even greater. And if there are this many opportunities for the average graduate, there must be a dozen or more positions for every *good* man.

A quarter-century ago, when the electric industry had fewer opportunities to offer young men, it had a far greater appeal to them. In many respects, the industry now offers more and greater opportunities than at any other time in its history, but young men are not aware of this fact.

The Student Looks at Our Industry

The survey found that students most frequently mention five major impressions which influence them against a career in the electric utility industry. These impressions are:

1. Electric utility company salaries are too low.
2. The companies do not interview and recruit men on college campuses.
3. The companies seldom offer good training programs.
4. Opportunities for advancement are too limited.
5. The industry offers too many of the disadvantages of Civil Service employment.

In brief, the cards presently are stacked against the industry in the field of college recruitment. Enrollment in power courses is reported to be thinning, while enrollment in courses such as electronics is on the upswing.

And to those of us who have been closely associated with the industry, and who know the romance and the glamour inherent in it, there is a tragic note in being told that the young men of today believe we are lacking in "punch."

Ours is one of the nation's vital and vigorous industries, growing at an unprecedented pace and offering countless opportunities. Our potential to a young man can be exceeded by few other industries. Yet we are failing to sell ourselves.

We need to advertise the industry, and to furnish the nation's colleges with our literature and contact them with our personnel representatives. We must compete with other industries through the establishment of formalized training courses and specific programs of development. In short, we must use all the re-

cruiting tools at our disposal, and we must use them well.

Selecting and Developing

Formalized training programs, time and time again, have proved to be one of the major attractions which an industry can offer in college recruiting. Young men prefer jobs with a tailored set of specifications, and they want a definite outline of their possibilities for advancement.

However, our survey disclosed a general impression that it is the practice of the electric utility industry to hire men and then to forget them for a decade or so.

One engineering college, which operates a placement service for its alumni, reported a particularly unpleasant set of facts in regard to former graduates who had been placed in the electric utility industry. The college reported that many of these alumni, most of them between 30 and 40 years old, had become dissatisfied with the rate of their advancement, and had asked the college's placement bureau to find openings for them in different fields.

The college went on to say that more such requests were received from alumni employed in our business than were received from alumni in all other businesses combined.

This is a strong indication that a well-organized program of training, developing, and stimulating the industry's young men must continue long beyond the completion of a short initial training course.

Regular progress rating and review of all employees at periodic intervals, and specific employee advancement programs are being used successfully by many companies.

Extension of these programs is vital if the industry is to dispel the impression that slowness of advancement is one of its characteristics, and thus dissolve one of the greatest deterrents to our ability to attract top-notch manpower.

Do our companies stimulate our potential future executives to participate in the activities of the industry? Do we recognize and encourage their extra-curricular activities, and do we make certain that they receive adequate recognition and rewards?

Do we remember that we now have among our employees men who, though they do not have college degrees, still have far above average capabilities? Are we developing this reservoir of manpower?

Are we convincing our young men that hard work and merit will enable them to advance financially? Do we always remember to program the advancement of every employee who proves himself outstanding?

Too often, the answer to these questions is no.

Need for Faith

At a recent meeting of industry executives, a showing of hands was asked, to determine how many of those present would recommend the industry to their sons as one in which to make their careers.

Only *two* men raised their hands. The question, or the gist of it, was repeated—and once again, only the same two persons raised their hands.

But if we stop to think, each of us will realize that a smart young man, with a good record in college and a fine opportunity to succeed in any job he tackles, can carve a brilliant career for himself in the industry.

We have a lot of room at the top, and there is going to be a lot more.

Virtually no other industry offers more opportunity. Our possibilities are unlimited. With faith in our own industry—and faith in great measure—we need have little difficulty in selling the industry to others.

Do we give our people sufficient facts and encouragement so that they have faith in the future of the industry and become its best salesmen? And do we ourselves have sufficient faith—faith in our growth, and in our opportunity to serve?

"Do" List

These comments which I have presented are not intended to be cynical. Rather I hope they will prove constructive. Because I do have great faith in our industry's ability to build an even more brilliant future for itself.

But to build that future, we'll have to do some things to improve ourselves. Let's call them a "do" list.

First, when we get back home, let's take a good look at our companies, and their future. Let us project 15 years into the future, and 30 years, to see how each of our companies stacks up in potential size and complexity. We'll soon realize it will take an increasing amount of top manpower—more and better manpower than we think—to run this giant industry of ours.

Second, let's examine the incentives of our companies, to stimulate maximum growth and development of our present people, and to attract more and better new ones. And let's review the job of providing adequate compensation and recognition as a reward for merit and talent.

Third, let's take a look at our development and training programs, to make sure that we really do provide a good future to outstanding young men, and then let's beat the bushes at the nation's colleges and universities to attract more young men of this caliber. And let's do a full-dress job of making a favorable impression on youth and on our communities. This is a job not only for single companies, but for the industry as a whole. Let's re-sell high schools, colleges, and engineering schools on the future of our industry.

Fourth, let's realize that we must act immediately, and that we must act together. The nation's colleges are filled with the best of potential material in their history—the former GI's. These men are eager to start civilian careers in which initiative and ability will give them higher-than-average rewards. Thus, this is the best possible time to organize for joint action in telling them about the future of our industry, to develop recruiting programs which will bring them to us, and to organize training and development programs which enable them to make the most of the chance they are waiting for.

Looking Forward

America is a mighty nation, founded on enduring principles which endow it with a heritage of boundless progress.

This nation constantly has produced beyond the imagination of not only its critics, but its staunchest followers as well. So, too, has this industry.

Our industry is not plant or lines or equipment. Our industry is people. Helping them to grow is our prime responsibility, for their progress is the progress of the industry.

As a vital basic industry in the most powerful nation that history has ever known, it is our obligation to aim high, think big, and have faith. For our future is for the most part what we make it.

Let's remind ourselves, "Where there is no vision, the people perish." And let's remind ourselves, too, that if only we have sufficient faith, our future can be unlimited.

So I say to you, *let us have faith.*

What Makes Leadership?

By Frank R. Pierce
President, Dearborn Motors Corp.

An address before the Fifteenth Annual Convention of the Edison Electric Institute, Atlantic City, N. J., June 3, 1947

IT is a distinct pleasure to me to have the opportunity of coming back into the great electric industry for a short while and join with my friends of the utility companies and men in the industry in which I spent so many years of my life.

It is a real honor to have the privilege of addressing you today. I only hope that what I may have to say to you will be worthwhile.

The subject of "Leadership" is a challenging one and at the outset I want to make a statement that will be more clear to you when I get through. "I am most certainly not an authority on the subject." I only expect to carry out the main thought I hope to leave with you, and that is, "Have the courage to do what you know is right and be willing to accept the consequences."

What does it take to become a leader?

One can be the outstanding violinist in the state or the nation, be recognized by the entire musical profession as the leading violinist, and yet fall flatter than a pancake trying to lead an orchestra. A teacher may be recognized as the leader of her profession, or a bookkeeper, or a salesman, and yet, none of them may have what it takes to lead a group of individuals engaged in some cooperative activity.

The "Something Else"

This being true then, what does it take to become a leader? When your committee asked me to be here today my first approach to this talk was along the lines of what might be expected—a recitation of many qualities of leadership. When I got through listing all the qualities I could think of, I realized that something was missing. I realized that I had heard the same thing many times before. It is true that each one of these qualities, or at least a majority of them, seems to be a part of the qualifications for most leaders. But, for some reason or other, they don't seem to me to be the complete answer. Something else must go along with them.

Let's take the matter of knowledge.

MR. PIERCE

Undoubtedly a leader should know the answers to questions to be raised in the area of the department, company or group that he is leading. On the other hand, I have seen men with leadership ability move from one important leadership position to another, about which they know little, and, depending on the knowledge of assistants, do an outstanding job of leading that new group to greater heights. It takes something else.

What about hard work? It is true that most leaders I know do work harder than those they supervise. Possibly, not always at the desk where everyone can see them, but a real leader never seems to be able to leave his job behind him. He constantly is thinking and planning—developing ideas that can be put into effect at the proper time. On the other hand, I have known of many men and women who worked just as hard as their leaders and in similar ways, but somehow or other they just never developed into leaders. It takes something else.

Yes, initiative is one of the great qualities of a real leader. A self starter, a "thinker upper," and a "getter doner." Aggressiveness is another leadership quality. The ability to sell one's own ideas, a keen sense of human values and the ability to check, check and check again to make sure that the job is being done according to schedule and in the right manner. Mr. R. H. Grant used to say that a supervisor is as good a manager as he is a checker.

All of these qualities will be found in most leaders. But as I look over the people I know in business today, I find these qualities in many people who yet are not leaders. It must take something else.

In Rose Wilder Lane's book, "The Discovery of Freedom" I found something which to me not only dramatizes that which makes this country of ours great, but also points out to me, at least, the real "something else" that more than anything else is responsible for some individuals' standing out as "leaders" while other fine people, with many qualities of leadership, just never reach that point in their careers.

It goes something like this:

For sixty known centuries this planet that we call the earth has been inhabited by human beings not basically different from ourselves. Their desire to live has been just as strong as ours. They have had at least as much physical energy as the average person of today and among them have been men and women of great intelligence.

Age of Plenty

But for six thousand years, most human beings have gone hungry. Famines have always killed multitudes, and still do over most of this earth. Only ninety-five years ago the Irish were starving to death and no one was surprised, because Europeans had never hoped to get from this earth enough food to keep all people alive.

Why did men die of hunger for six thousand years?

Why did they walk and carry goods and other men on their sweating backs for six thousand years—then suddenly

in one small part of the world we find a condition of progress, prosperity and general well-being surpassing the fondest dreams of all preceding ages?

Why did families eke out a meagre existence for six thousand years, living in floorless hovels, without windows or chimneys—then, after three generations and only in these United States people are taking floors, chimneys, glass windows for granted, and regarding electric lights, running water, porcelain toilets and window screens as minimum necessities of life?

Why did workers go barefoot, in rags, with mangy skins and lousy hair and unwashed teeth for six thousand years, and then here, in one brief century—we revel in lipsticks, nylon hose, shower baths, safety razors, ice cream sodas and permanent waves? It's incredible—if we should but pause to reflect.

Age of Power

Swiftly, in less than a hundred years, Americans have conquered the darkness of night—from pine knots and candles to kerosene lamps, to gas jets, then electric bulbs, neon lights, fluorescent tubes.

We have created astounding defenses against weather — from fireplace and stove to central heating, automatic burners, radiators, insulation, air conditioning.

We have made stupendous attacks on space: from oxcarts, rafts, canoes, to railroads, steamboats, streetcars, subways, automobiles, motor trucks, buses, airplanes—and attacks on time through telegraph, telephone, and radio.

We have moved from back-breaking drudgery into the age of power, substituting steam, electricity and gasoline for the brawn of man, and today the scientists are taking over and finding ways for subduing to human uses the infinitesimal tinyness within the structure of the atom—tapping a new source of power so vast that it bids fair to dwarf anything that has gone before.

And along with all this, Americans have outdistanced the world in the spread of literacy, enlightenment, health, longevity, general well-being and goodwill toward others. Three generations, grandfather to grandson—have created these wonders surpassing the utmost imaginings of all previous time.

How did it come about? How can it be explained?

Just what has been responsible for this unprecedented burst of progress which has so quickly transformed a hostile wilderness into the most prosperous and advanced country that the world has ever known?

Maybe the best way to find the answer is to first rule out some of the factors that were *not* responsible:

To say that it's because of our natural resources is hardly the answer. The same rich resources were here back when the mound builders held forth. China, India, Russia, Africa, all have great natural resources.

Is it because we work harder?

Again the answer is "no" because in most nations the people work much harder on the average than we do.

Can it be that we are a people of inherent superiority?

That may sound good in after-dinner oratory and goes over big in elections, but where on earth did most of us come from?

Can it be that we have more energy —mental and physical—than the other peoples of the world?

That's not the answer either, but it's getting pretty close.

We are not *endowed* with any superior energy—either mental or physical —but it is a fact that we in these United States of America, have made more effective use of our human energies than any other people on the face of the globe —anywhere or at any time.

And the underlying reason is so simple, so obvious and so elementary that it's really an anti-climax.

It traces back to the American Revolution—not the war itself—but to the revolutionary thinking that led, first to the War of 1776 and then to the development of an entirely new form of government that was diametrically opposed to the pagan beliefs of old world thinking.

Individual Responsibility

Instead of following the time-honored procedure of trying to control people's lives through strong centralized authority, our American government was set up with the idea of throwing the responsibilities back to the individual citizen.

That's the answer—the real answer —and the only answer.

Old world thinking, generally speaking, had always been based on the assumption that man was not a free agent. He must be held subservient to some all-powerful authority. And a government, to be effective, must have the say-so over the individual acts of its citizens and plan their daily lives for them.

It is a nice sounding theory, easy to lay out on paper and most alluring to the visionaries of all ages, but it overlooks two very important facts: First, that human initiative is the source of all progress; and second, that human initiative is a spontaneous individual trait which can not be forced from without.

Only an individual human being can generate human energy. Only an individual human being can exercise efficient control over the energy that he generates.

From this it follows that only free men, cooperating in a free and friendly environment, can make full and effective use of their abilities—their initiative—their imagination and their creative facilities.

Freedom

The result of this entirely new kind of government in the United States was an outburst of energy, personal initiative, imagination and creative effort the like of which the world had never known—and which has made the great-grandchildren of these revolutionary leaders the most prosperous and powerful people on the face of the globe.

Here in this Republic less than 7 per cent of the earth's population has created more new wealth than all the 2,000,000,000 human beings in the rest of the world—and the benefits of this great wealth have been more widely enjoyed than in any other country—or at any other time.

You may think that this is a talk on the free enterprise system rather than leadership. As a matter of fact our way of life has been responsible for the development of many leaders. I believe that the real quality of leadership in the individual is the same as the real quality of leadership in a people or a country. And that quality is FREEDOM. If it is true that "only an individual human being can generate human energy," it is also true that "only an individual human being can generate leadership." And it is likewise true that "only an individual human being can exercise efficient control over the leadership that he is willing to and can develop."

Leadership, gentlemen, takes the nerve, the guts if you please, to do something on your own because you know it is right and because you are willing to take the consequences.

From an economic standpoint, leadership is the opposite of security. It pays good dividends if you win, but you will never become a leader if you always

look for security in everything you do. I challenge the industrialist who tries to attract leaders by offering security. If you want perfect security all you have to do is to go out and commit some crime just short of murder and you will be put in the most secure place in the world—prison. You will have your food, your clothing, your shelter—absolute security for the rest of your life. But, you won't have any freedom and you won't have the opportunity to do any leading or have anything to say about where you are led.

If I wanted to criticize the utility companies of America, which I don't want to do, I would question the system which has caused many utility people to say to me from time to time, "I can always work here if I don't stick my neck out and am willing to go along." In other words, security, but, I ask you, "Does that create 'leadership'?"

Leadership Responsibilities

If you would be a leader, "Have the courage to do what you know is right and be willing to take the consequences." If your boss won't delegate responsibility to you, take it. He'll either love it or fire you. If he loves it, you are on your way to becoming a leader. If he fires you, you don't have a chance with him anyway.

Don't misunderstand me, I am only talking to you from the standpoint that you want to be a leader. Not everyone wants to be a leader and that is perfectly okey and, no doubt, fortunate, because everyone can't be a leader. Not everyone wants to accept the responsibilities of leadership. Many would prefer and will be happier without these responsibilities. We all recall the very efficient worker who was promoted to the job of assorting oranges when they came down the conveyor. All he had to do was put the small ones in one box, the medium ones in another box, and the larger ones in still another box. He turned the job down because he didn't want the responsibility of making so many decisions.

"Have the courage to do what you know is right and be willing to accept the consequences." Too many would-be supervisors try to interpret policy on the basis of what they "think" the boss once said or did or what they "think" the boss wants rather than on what they "know" is right.

One of the great problems in industry today is the lack of a two-way flow of information from the policy-making executives of the company to the people in the organization and vice versa from the latter back to the former. Too much telling the "boss" what they think he would like to hear, rather than the courage to tell him exactly what happens or is going on.

Recently, I made a plane trip down south. About the time we were flying over Cincinnati, Ohio, 7000 feet in the air, it was a beautiful, sunshiny day. There was a solid bank of beautiful white clouds below us and apparently, to us in the plane, it was as nice a day as anyone would ask for. The co-pilot came back through the plane and I asked him what sort of a day it was in Cincinnati. He said that according to his radio reports it was a dark, gloomy, rainy day. Most disagreeable. The thought occurred to me that it would be wonderful if we had something as efficient as a radio with the courage to tell us exactly what the weather conditions were at all times in all spots in our organization. Sometimes the head of a business may feel that it is a beautiful sunshiny day when actually it is not, on the ground. Sometimes the employee has no idea of the real thinking of top management with relation to a particular problem. We need a two-way radio system and the only radio that I know of that we can use is the two-way flow of factual information, regardless of the consequences, so that at all times everyone in the organization knows the real thinking of everyone else.

You folks in this room carry a tremendous responsibility in the development of that two-way flow of factual information. You are on the firing line. You know better what is going on than anyone else in the organization. Have the courage to do what you know is right, and be willing to accept the consequences.

Effective Leadership

If we have that courage, that freedom of thinking and acting, if you please, then we can add all the other qualities of leadership and increase our leadership effectiveness to the degree that we are outstanding in each of these qualities.

And while you are at the job of being a leader, don't overlook the fact that you really have a selling job to do. After they have been properly adjusted, there is every reason to expect machines to do what they are supposed to do, the same thing over and over again, day in and day out. From our knowledge of the various metals used in industry we can expect them to do what they are supposed to do under a given set of conditions and they usually do. On the other hand, no one has developed a formula or system to control the minds of other men. People don't always do the same thing over and over again the same way; they react differently to the same stimulus at different times, depending on how they feel and other circumstances leading up to a particular situation.

Selling Your Ability

You may say that you are not a salesman. Who sold your wife? Everyone has a selling job to do. The doctor must sell his medicine; the lawyer must sell his interpretation of the law; the standards man must sell the reasonableness of his manufacturing standards; the engineer must sell his specifications; and certainly you, as a leader, must sell your management or leadership ability. Just being a good expert in your particular field is not enough today.

The people who work with you must believe in you, respect you and understand you. You represent management to them. You are management. What you say and what you do is watched constantly by everyone in your group. It is your responsibility to interpret the real thinking of management in the light of today's conditions—and not what it was ten years ago.

Sometimes we are all impatient with those who do not understand our motives. One of the biggest causes of conflict between people is misunderstanding of the other fellow's motives. Things are not what they actually are. Things are what people think they are and unless you do your part in helping to straighten out their thinking, you are not carrying out your full responsibility as a member of management, as a leader.

One day a group of men were standing on an automobile showroom floor. One asked the question, "What is the most important part of an automobile?" One answer was "The engine, of course. Without the engine the car couldn't move." Another answer was "The steering mechanism, because without steering it would be useless since you couldn't go where you wanted to go." Another answer was "The wheels, because regardless of engine or steering devices, unless you had wheels it wouldn't give you a nice smooth ride down the road." About that time a

colored porter came up to one of the men and said, "Boss, will you let me have the key to that car? I want to move it so I can clean." Right then, Gentlemen, the KEY was the most important part of an automobile.

You as a leader, are the key, the most important part of your organization when it comes to influencing the thinking of those who work with you.

And, of course, the best way of influencing the minds of those you associate with is to have them respect you as their leader. Now, I am not one of those who thinks leadership of men consists of "peaches and cream" type of treatment. I don't believe in a namby-pamby type of treatment. I do believe, that strict discipline is necessary. There is no question about it—you must be the boss. People do break rules and when they do they should be disciplined if you are to maintain control over the group. At the same time, it is not necessary to be a Simon Legree.

I think, that if we keep in mind one simple fact it will be helpful. The people you boss, and I prefer to say lead, are human beings. They have the same feelings and the same emotions that you have. They respond to the same kind of things that you respond to. They respect the same kind of leader you respect.

Gain Respect

And don't overlook the fact that they *like* to respect their leader. They *want* to respect their leader. Anything that you do that tends to lower their respect tends to disappoint them.

Favoritism tends to lower their respect for you. So if you want to be a leader, you can't play favorites.

People like to be complimented; so do you. A slight pat on the back, a real friendly smile will go a long way towards creating a friendly attitude in your group. And, speaking of a slight pat on the back, if you are supervising a group of women don't always make it the best looking one either.

People don't mind fair criticism. Neither do you. But hasty criticism, before you are sure of all the facts, sometimes breeds trouble for the leader.

People don't mind discipline, if it is fair. Neither do you.

People like attention. So do you. Even a general manager likes attention. Why, even a general manager once complained to me because when he went down the halls of the main office building, several of the top executives, who were busy discussing some problem, did not notice him as he passed.

People like to know that their leader is fighting for them. Have the courage to fight for your people. Take up for them. One of the greatest qualities instilled into any Marine officer is—when it is possible to do so—always look out for the comfort of your men before anything else.

Make Decisions

Have the courage to do what you know is right and be willing to accept the consequences. People like to know their leader is willing to make a decision. So don't be afraid to make decisions. Be sure you are right but go ahead and make a decision. You will make some mistakes, but you will also make some progress. Even a turtle makes no progress, unless his neck is out.

And, for goodness sake, if you have made a wrong decision, don't hesitate to admit you are wrong and change it. You can't cover up with those you work with. They see through every move you make. They will respect you for admitting you are wrong and changing, much more than they will your trying to bull something through that you and they know is wrong.

If you would be a leader, you must get men to respect you and like you. How can you get men to respect you and like you? There was a man who gave us the answer to that one almost two thousand years ago. And his answer is in two parts:

The first rule in winning men, is this: "Ye shall know the truth and the truth will make you free." But, says someone, that is from the Bible. Yes sir, and that is why it is so good. You can get more good out of that book than any other you ever read. And you can get more real tips on how to become a leader than you can get out of any other book. That first rule is more than just a preachment. It is sound common sense. You can not reach a truly sound judgment without first having the facts, the truth. You have got to have the facts if you want to set up a sound policy. You can not be sure you are doing the right thing until first you get the facts. And you ought to insist on getting the true facts. Many of our troubles come because we believe so many things that are not true. If you want to deal wisely and rightly with men, you must first get the truth.

The second rule is also from the Bible, and from the same teacher. It is, "Do unto others as ye would have others do unto you." They call that the Golden Rule and it is golden, for it is true and it works. Use that and men will trust you and go along with you. For it means that you will be a straight shooter, a "regular" guy, who can be depended upon to deal fairly with his men.

The price of leadership is not great. It calls for faith, it calls for work, and it calls for courage. No one has ever found a real substitute for believing in yourself and working hard to get what you want.

Even if you are handicapped by poor health or some defect, you are not bound to lose or to remain stuck somewhere. Our very handicaps sometimes become our opportunities. The thing that is hard and that requires hard effort to overcome often leads us straight to success. Remember, success is finally making the most of what you have, doing a good job and winning the respect and love of your fellow men.

There was once a young lad in Chicago, back before the beginning of this century, who could not talk. He stuttered so badly that he was not allowed to recite in school. He wrote his lessons on the board or on paper.

Nothing You Can't Do

One Sunday afternoon he went to a meeting at the Central YMCA in Chicago to hear Senator Albert Beveredge, of Indiana, give one of those canned talks on how to succeed. At one point of his talk, Senator Beveredge pointed his long finger straight at this boy and exclaimed, "Young man, there isn't a thing you cannot do if you believe that you can, and will work."

The boy went home from that meeting, convinced that he could do it. He had read about a Greek by the name of Demosthenes who overcame a defect in his speech by filling his mouth with pebbles and then trying to talk. Well, the boy thought, if Demi could do it, so could he. And he tried it. He told me that if you will walk along Lake Michigan by the Edgewater Beach Hotel today, you can still see the waves rolling up in protest against the speeches he made so many years ago. The boy tried other ways, including forming his words at the lips and practising with his tongue and lips. It took him ten years, with a lot of discomfort and mental suffering, for sometimes people make fun of others with such defects, but the time came

when he could talk. And, the very thing that was his handicap as a boy has come to be a means by which he makes his living today. That boy was Dr. Alfred P. G. Haake, a great orator and one of the greatest debaters in favor of the free enterprise system in the country today. No doubt you have heard him on the radio many times.

Dr. Haake once said there is a promise in another part of that book from which I quoted a little while ago. It goes like this, "He that overcometh will inherit all things, and I shall be his God and he will be my son."

He that overcometh will inherit all things. That's what life is—overcoming. That's the way we grow, become strong, learn and accomplish. We don't want weaklings who ask government or some organization to do things for them.

We need men who can stand on their own two feet, men of courage, faith and willingness to work, men who will make their jobs their business and overcome the problems and difficulties that stand in the way.

"Have the courage to do what you know is right and be willing to take the consequences."

And so, in closing, I would like to add just one more quality to that of a leader —more important, in my opinion, than many of the others. Be enthusiastic about what you are doing. If you expect someone else to really believe in you and what you are trying to do, how can you expect them to believe if you don't seem to care very much whether they do or not.

We have all run across the lackadaisical refrigerator salesman who leans on the refrigerator and says, "Lady, ain't she a beaut?" Compare that salesman with the one who enthuses about his product, gives it a loving pat every once in a while and really shows that he himself is sold on what he is selling.

Many years ago I heard a dissertation on "Enthusiasm" which has been helpful to me ever since. It went something like this:

"A wonderful gift is this quality called 'Enthusiasm.'" It is too often under-rated as so much useless display of energy, lacking in real substantiality. This is an enormous mistake.

Enthusiasm is the dynamics of your personality. Without it whatever abilities you may possess will lie dormant until you learn how to put your heart and your soul into action.

Enthusiasm is the power that moves the world. Men can cut through the hardest rock with a diamond drill; he can tunnel through mountains, and checkmate and divert the very laws of nature, but there is no power on earth that can cut through another man's mental opposition except persuasion. And persuasion is reason plus enthusiasm, with emphasis on enthusiasm. Enthusiasm is the art of high persuasion. You have a good idea—don't think other people will recognize it immediately. Columbus had a good idea but he didn't get across with it without much of his high persuasion. Much of your progress will depend upon your ability to move the minds of other men.

If you would be a leader among men, cultivate enthusiasm. People will like you better for it; you will escape the dull routine of a mechanical existence and make headway wherever you are. It can not be otherwise, for this is the law of human life—Put your soul into your work and not only will you find it a pleasure every hour of the day, but people will believe in you, just as they believe in electricity when they get in touch with a dynamo.

And remember this—there is no secret about this gift of enthusiasm. It is the sure reward of deep, honest thought, and hard, persistent labor.

Union Electric Wins Annual Report Contest

THE Union Electric Company of Missouri, St. Louis, this year won the Award offered annually by Reddy Kilowatt Service for the Annual Report of an electric light and power company, which in the opinion of the contest judges "best illustrates, humanizes and simplifies" the company's operations.

Presentation of the Award, a handsome bronze plaque, was made by Ashton B. Collins, founder of the Award, to J. W. McAfee, President of Union Electric, on June 4, at the EEI Convention.

Two other companies received Honorable Mention: Pennsylvania Power & Light Company, Allentown, Pennsylvania—"For its excellent presentation of comprehensive data, well organized and splendidly arranged in simplified fashion." Wisconsin Power & Light Company, Madison, Wisconsin—"For its human interest graphs and dramatization of data which make the Report rather pre-eminent. Also, for the fourfold objectives on the back cover to exemplify the goal the company expects to reach. Also, for putting its story before the stockholders in their language rather than 'officer language'."

The Contest this year, it was reported, established a new high in the number of entries and the judges have stated that they found it difficult to select the winner and other outstanding reports because of the general improvement in all reports in the quality of the

(*Continued on page* 197)

Mr. McAfee, center, receives the Reddy Kilowatt Award from Mr. Collins. H. M. Sawyer, Chairman, EEI Prize Awards Committee, at left.

A Look At Your Broadened Responsibilities

By Thomas I. Parkinson

President, The Equitable Life Assurance Society of the United States

An Address before the Fifteenth Annual Convention of the Edison Electric Institute, Atlantic City, N. J., June 5, 1947

IT IS A pleasure to be with you. I have been more or less associated with you since my earliest days. It was then my privilege, later my responsibility, to have had a part in a Philadelphia law office in the drawing of the corporate papers of two or three of the original holding companies in this industry. I think in later days, when I had the responsibility of investing large sums of my life insurance company's money in the securities of those companies, I felt more of the responsibility than I had previously enjoyed the privilege.

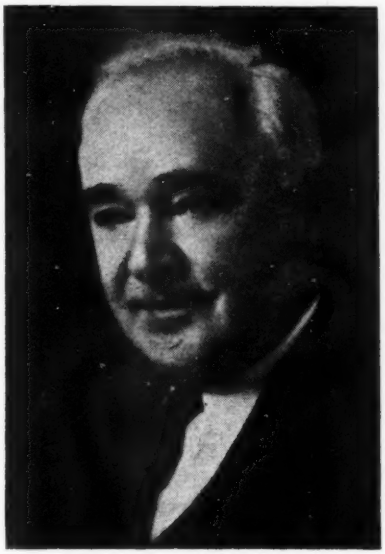
One thing at the outset. I have no essay to read to you. I am a nuisance to executive secretaries because I do not provide them with copy for publicity. I find it difficult to talk to any kind of a group until I face it, and very often when I face it, which I am afraid is a little bit true this morning, I am none too well prepared to do the job which I have, with the greatest of pleasure, accepted.

Our Responsibilities

At the outset, too, may I say that when my good friend, your former president, Mr. Kellogg, invited me to be here this morning, I told him that I would agree to talk on almost any title that he would suggest. I have only one correction to make in that title. I would like to eliminate the "Y" and, instead of talking to you about *your* broadened responsibilities, I'd like to talk to you about *"our"* broadened responsibilities.

We are much alike, as indeed are all important businesses in this modern world. You, I am told, have 37 million customers. We have nearly twice that many policyholders, and in all, we boast of 165 million policies outstanding on the lives of the people of this country, representing the obligations of the life insurance companies to them and their beneficiaries.

While our problems are similar, they are not always exactly alike. I remember some years ago, that Floyd Carlisle called together a group of us life insurance executives, and having entertained us handsomely, proceeded in his dignified and somewhat solemn way to tell us of the problems that he was confronted with in the good old Consolidated Edison. Those problems were pretty much on the side of refinancing, and that's a tender subject with us. Later, in reporting to another group, the occasion to which I have just referred, he said it was a great disappointment to him, that having brought together that great aggregation of life insurance brass, he got out of them not one blessed idea.



MR. PARKINSON

Well, you know, when your interest is in refinancing at a lower coupon rate, you can't expect us to be enthusiastic to help you solve your problem. Your problem, of course, is capital at a lower cost. Ours is investment at a higher yield. We both have the problem of devising a good product, and of selling it. We in the life insurance business, think we have a good product. We put a very great deal of time and energy into selling it, and we find that we have not only to sell it, in this year, and this month, but we have to sell it again next year, and indeed, again next month. In other words, our selling problem is a continuous one. We know it.

You have a similar problem, not merely to have a good product, as you have, but to sell it, and I want to make a few observations this morning with respect to the difficulty of selling your product, ways and means of selling it more effectively, and the consequences to you.

Even though your product is good, you have to keep people aware of the fact that it is good and that is not an easy job. You have the advantage, which may sometimes be a disadvantage, that your product is so universally used, and so easily and automatically turned on and off. Those of us who lived before 1890, and had nothing to do with the development of your product, and who now use and enjoy it, realize that we are the beneficiaries of an enormous amount of effort on the part of someone else, but those folks—and they are many among your customers, and among our policyholders—who have arrived on this planet within the last 25 years, know nothing of those prior days, and take your service for granted. They use it as a matter of course, and are only vocal when by some emergency, it is cut off.

Tell Your Public

You have done a magnificent job on the engineering side, and in the reductions of your rates to your customers. I am told that your rates are down 17 per cent while the cost of living generally has gone up 55 per cent. That's a magnificent job, and it ought to be appreciated hilariously by your customers particularly, and the general public, rather than as it sometimes is, meanly complained of.

Not only in the development of your plants for generating and distributing, have you done a wonderful job, but in the restoration of service when some great crisis has interrupted it, like the hurricanes which I saw in the Long Island vicinity in recent years. There was terrific havoc caused to your prop-

erties, causing interruption in service which brought home so strikingly to your customers how much you entered into their daily lives. It was impressive, but even more impressive was the promptness with which you restored your service. That was a grand story of modern business performance. Have you told it? Well, I suppose you have told it at times. Have you told it to those who didn't experience it? When I say "told it," I mean, told it, and re-told it, and in language that the newcomers who did not have the sense of experience will understand and appreciate?

Not only is your service good, but it is so good that you have led people to believe that there is no limit to your capacity to serve their needs and expectations. That reputation itself produces a problem. We have the same problem. Sometimes, I think we have oversold the public on life insurance protection, and now, right now, we encounter some expectation on the part of the public that we aren't ready to meet. There is a negative job of selling confronting us, in explaining to them why we can't do some of the things they want us to do. You are going to have that problem in the near future. My friend Ed Barrett almost had it with his gas customers down in Long Island last winter. He is more likely to have it next winter. A. T. & T. has had it during the war, and without going into detail, I just suggest that A. T. & T.'s efforts to explain to the people of the country why they could not give more telephones, or the service that was expected of them, is a good example of the negative side of public relations, teaching the public why they can not have that which they want.

Heyday of the Holding Company

As we look back over this period of tremendous expansion of your business, of the tremendous development of your plants, of the marvelous performance from the point of view of public welfare there are some curious facts that confront us. Not only did you need extraordinary engineering experience, but you had it. Not only did you need extraordinary amounts of capital, but you had them, and to the extent of at least two-thirds of the total electric power used by the people of this country, you had them from the holding company organizations.

The holding companies have come in for a good deal of condemnation in this country, and are now almost at the point of expiring. They deserved some of what they got but they served some useful purposes. The people of this country would not have enjoyed the electric power which has been so essential to their lives during the past few years, and is to be in the future, had it not been for the holding companies in the days when they were providing the capital, the engineering experience, the "know how" under which the smaller companies, forming parts of their system, developed and served the public. But the holding companies must have failed in some respect, and I think, as I look back on the days of 1933 and '34, their failure was in the field to which I want to direct your attention for a few moments this morning.

Holding Company Death Sentence

The public utility companies, and especially the power and light business, were not obsolete in 1934 and '35. The holding companies were under criticism resulting in their death sentence. But at that very time we in the Equitable bought a very large volume of the bonds of the operating companies, and many of those bonds were of operating companies in the systems that were under the greatest public criticism. We had faith in your business, and we had faith also that the public condemnation which was prevalent was directed at the holding companies and not at the generating and distributing companies. We bought a very large volume of those bonds and were credited in the Street, in New York and Chicago, with investing in second rate public utilities.

Well, they turned out to be first rate public utilities, and when they were refinanced, at lower rates of interest, we took a handsome profit in the call price against our cost for the benefit of our policyholders. We never tire of telling our policyholders that was for their benefit and that it resulted in benefit for them and no one else. You have a similar problem which the holding companies did not perform too well, telling your stockholders, that what you do is primarily and ultimately for their benefit.

In other words, I'm trying to say to you, that the job that was well done for you in the field of engineering and financing, and not so well done for you in the field of public relations will no longer be done for you by the holding companies; it is now on your hands—the hands of the managers of the operating companies. Are you ready for it? How are you going to see to it that you have a good product in the future which to the greatest possible extent will serve the demands of the public, and how are you going to keep the public informed so that it may be enthusiastic about you, rather than critical of you?

I have only a few suggestions. In the first place, your employees form an important factor in selling your institutions and their services to the public. I don't know whether you have developed employee morale, employee enthusiasm to the extent that we in the life insurance companies have found possible and profitable. We are continuously making use of our employees and our agents to sell not only life insurance security, but to sell our company, and we derive great benefit from a satisfied, proud, interested, and appreciative group of employees. I feel sure I can say to you that you can have that to a greater and greater degree, and thereby help to forestall some of the reckless and irresponsible criticism of our companies, to which the public listens, and which employees are either not ready or minded to resist.

Then, of course, you have your stockholders; you no longer have the one stockholder, the holding company, to tell you what the stock interest wants. You now have a great body of stockholders, but that's no disadvantage. In the long run you will like that, but it does make you find out for yourselves what the great body of stockholders wants.

Revive Customer Interest

There is no one who can tell you authoritatively what they want or expect of you. It may be that despite the unfortunate experience from which you are still suffering, of customer ownership of some of the holding company stocks, you can still revive customer interest even in your common stocks, and thereby add greatly to their sense of partnership in the industry, and their enthusiasm in support of you, the managers, and the industry generally.

I won't tell you how to conduct your public relations with either your employees, your stockholders, or the general public. All I will tell you is, that if you are to do the job that lies ahead of you, to meet the expansion of your industry, you need financing. You need equity money. You need bond investment. You need for all of those things—adequate rates. All that comes back to public

opinion, and unless you get public opinion right, you cannot get the basis upon which your engineering skill is absolutely dependent. I take off my hat to that engineering skill, but it's the capital provided by the savings of the people, invested very largely by life insurance and savings-bank management that provides the capital without which the engineering skill would go very little of the way that you have gone, and that you must go in the future.

The public relations job of your future is not for some head of a department, some assistant secretary; it is for the top executive. The public relations job, from this point on, in your industry and in mine, is the top man's job. We can hire men to attend to every other phase of our businesses and do it with increasing success, but I tell you it is my earnest belief that we cannot hire public relations men to do the public relations job for us.

Don't Delegate Public Relations

We can hire various instrumentalities, various kinds of talent to advise us, and help us to do a good public relations job, but the public relations job is on the desk of the top executive in every big business in this country, and that's nothing to be alarmed about. The most successful executives I know in the business world are good public relations men. What I emphasize is that you take that job on your own desk, or get away from that desk. Don't try to delegate the public relations job.

Now I have said that financing is an important part of your future problem. Of course, that's where my interest comes in. We in the life insurance business have provided the electric power and light business with 55 per cent of their senior capital in the past. We were very happy about it in the past. We are not too happy about it right now. You, of course, have been delighted with your power to reduce your interest cost by refinancing with lower coupons during the last few years. We have not so enthusiastically bought your refinancing issues at the lower coupon rates. Those of you who are observing carefully will note that three important public utility issues, one of them for new money which came out this week, are not being distributed so rapidly, or, to put it another way, bought so enthusiastically as might have been expected a short time ago.

You are going to be in the bond market, not only for refinancing your old issues at lower rates, but also for new money. The right basis for you to seek new senior money, that is, bond money, is to show a picture of approval, not hostility, on the part of your regulating and rate-making governmental bodies. You must also show a picture of willingness of stockholders to provide the risk, or stock money. You have got to show a picture of public belief in your institutions, I was going to say, of public appreciation and enthusiasm about your institutions. Otherwise, how can you expect those of us who are responsible for long term investment of other people's money to be enthusiastic about putting that money into your businesses for the long term? It is going to be a large sum you will want.

You had your industry, I think, at the peak of its power to perform about 1930. You coasted through the years of the depression, and with moderate expenditures in the late '30's, you have come through the war with a magnificent record. I have even heard it said that the real secret weapon used to overwhelm our enemies was the great flood of electric power that your industry provided to other industries. But now you have come to the point where you need to expand your industry.

I don't need to tell you what my Westinghouse friends tell me. That is, that the companies that serve you with equipment are booked up to 1950, and you are still seeking additional equipment from them. I am told that four billions, at least, is what you will need in the next 3 years. That's a lot of money. That's new money. There is a lot of money around, but don't forget this, that only a small part of all that money is available for long-term investment.

Low Interest Investors

The long-term money is very largely that in the savings banks and the life insurance companies, and this low interest money that you have been getting is generally short-term money. If the conditions which have given you that low rate money persist, there will be fewer lenders of money who will want to take the long-term as security. There will be some few lenders for the long-term, but I venture to predict that only those who *have* to lend for the long-term will do so, and that means, practically, the life insurance companies.

You will find a lot of competitors in the market for new money. You have enjoyed, and are enjoying low rates of interest. Many of you have been seeking short-term money, bank money, at ridiculously low rates of interest. I warn you—I dare to warn you—to look out. Be sure that when the short term stuff matures you're going to be able to renew it either in short-term or long-term and on satisfactory conditions, otherwise you will be re-paying it out of your income to the detriment of your dividends. Don't kid yourselves into thinking that you are entitled to these low rates of interest. They aren't the result of your extraordinary credit. Good though your credit is, (at the moment the credit of your industry is about as good as any borrower can bring into the market for borrowing money today), it isn't your good credit that maintains these low interest rates.

The High Money Supply

That's what the U. S. Treasury and the Federal Fiscal Authorities have been doing the last few years, kidding themselves into believing that it was their extraordinary credit that produced these low interest rates. That was the great boast of the foolish New Dealers who said that their administration of the Federal Government was proved to be good by the low interest rates which their high credit commanded. That's simply baloney. These low interest rates are due to a deliberate fiscal policy to create an overwhelming amount of money, and that's what we have today, an overwhelming amount of money.

The money supply of this country averaged 60 billion dollars just before this last war; it is now about 165 billion dollars. This enormous increase has been created by the banks under our Federal Reserve System. Every time the banks bought bonds from the Federal Treasury they did it with new money which they created for the purpose of the transaction. Every time they bought bonds on the market, whether they were Federal bonds, Michigan bonds, public utility bonds, or what not, they created the money by placing a bank deposit at the disposal of the seller of the bonds, or the borrowers of their funds. When that seller of bonds, or borrower of funds made use of that bank deposit that was placed at his disposal, his checks entered into the stream of money supply of this country, and it stays there until that bond or that loan is taken out of the banking system.

The government has paid off about 28 billion dollars of its debt, bringing the

total down from 279 billions at the end of 1945 to 257 billions today. The net reduction in that payoff fo 28 billions has been 22 billions, because of increase due to sales of "E" bonds, and other trust fund transactions. The government has paid off 28 billion dollars of its debt since the end of the war, but the money supply has gone down only about ten billion dollars.

Where It Comes From

Why the difference? Let me put it this way to you. At the end of 1945 just after the war had closed, the money supply in this country consisted of 28 billion dollars of paper money and some coins in circulation, and 149 billion dollars of bank deposits. Today the money supply consists of about 137 billion dollars of bank deposits, and about the same amount, 28 billions of paper money and coins in circulation. But note this, at the end of 1945, of that 149 billion dollars of bank deposits on which somebody had the right to draw, the U. S. Treasury had the right to draw nearly 25 billion dollars of it, meaning that the people in the country as depositors in the banks had the right to draw about 124 billion dollars.

Today the Federal Treasury's bank deposits are down around 2 billion dollars, and the deposits on which the people and the corporations have the right to draw today have gone up from 124 billions to 137 billions. In other words, despuite the government's reduction in its debt since the end of the war, there is an increase in the money supply in the country. This is true simply because the Federal Reserve Board and the Federal Reserve Banks continue the policies of the war.

In a nutshell these policies provide that any member bank can turn in short-term government bonds to the Federal Reserve Bank, and out of the proceeds obtain the means of buying longer term government bonds on the market, or Michigan bonds, or public utility bonds, for the bank's own earning purpose. Banks have been buying government bonds and other bonds for greater earnings for their own purposes when nobody was asking them to do it—when the Treasury wasn't trying to sell them anything that called for patriotic support, when the only purpose of the buying was to increase the bank's earnings.

Our Federal Reserve system provided for increases in our money supply when bona fide borrowers from banks wanted the money, and were prepared to use it in their business, but it never contemplated an increase in our money supply to provide the banks with funds for their own earnings and nothing else.

That is what is going on today simply because the Federal Reserve Board persists in a foolish rule which was effective during the war. A rule that is all summed up in this, that any member bank holding Treasury 3-months' bills, or seven eighths of one per cent certificates, can take that paper to the Federal Reserve Bank and not ask them to buy it, but dump it on the Federal Reserve Bank's desk and be free to use the proceeds to go out on the market and buy other government bonds. When the bank does that, the buying of those other bonds, whether they are government, state, or public utility, adds again to the money supply of the country by the amount of the purchase. What is going on is a continual increase in the money supply of this country and that means mostly paper.

Do you think this large money supply is going to be beneficial for you? It is very largely because of there having been so much money around that refinancing has been at a low rate of interest. It is absolutely for that reason that the government has been able to maintain its low rate of interest. And it is for the purpose of maintaining those low rates of interest that the Federal Reserve continued this utterly foolish policy which in the long run will cost the people of this country very much more in increased prices for goods than an increase in the interest rate would have cost them. I submit that for your consideration.

The Financing Problem

In the life insurance world our concern about it is with respect to the question whether this huge money supply, if it is continued, or if it is increased, will increase prices, increase wages, and decrease the purchasing power of our policy proceeds. Your concern must be whether this huge money supply will increase the cost of your services to the point where you have no recourse except higher rates.

If you want every six months to quarrel with your employees over a demand for increased wages, and then the next six months to quarrel with the rate making authorities over the increases in rates that you need to pay those increases in wages, if that's what you want, for the next few years in the conduct of your business, you sit perfectly still and let the political authorities in Washington continue to do a foolish and unsound fiscal job.

If you don't want that, if you want stability on the financial side of your business, as well as competency on the engineering side, then you have got to take an interest in this question because it is at the very heart of your financing problem.

Is There A Depression Ahead?

I have already talked too long to you. That's one of the dangers of talking without an essay. I have been a little reckless, and have done a lot of prophesying. Even with all the doubts and difficulties that I see around me, I'm going to prophesy a little more.

I don't see a depression ahead of me, or ahead of you. I do see some difficulties but none that we can't overcome provided we can inject some sense into those who represent us on the political side of American activity.

We have inflation, that means an inflation of our money supply. Inflation is something that happens to money. Increased prices and demands for increased wages follow. These are the effects of the inflation of the money supply. We have had no deflation of the money supply. On the contrary, it continues to be inflated.

We have a balanced budget at the moment, or near it. We don't know what the demands on the Treasury in the next few years are going to be, either for domestic, or for international purposes. Any failure to keep the budget balanced means further deficit financing that will mean further borrowing; that will mean further increase in the money supply, and further increase in the amount of paper money floating around the community.

The expansion of your industry, the expansion of all business in so far as it results in borrowing from the banks, and the banks must certainly meet the demand for commercial loans—all of that will increase the money supply.

If the money supply goes from 165 billions to 200 billions, and from there to 250 billions, you must realize that it will force prices of commodities upwards. It will force wages upwards because the unit cannot be as valuable for purchasing purposes when there are so many dollars, as when there was one-fourth the number.

(*Continued on page* 248)

Atomic Energy

By Rear Admiral William S. Parsons, USN
Navy Director of Atomic Defense

An address before the Fifteenth Annual Convention of the Edison Electric Institute
Atlantic City, N. J., June 5, 1947

THE FIRST nuclear chain reaction, not only in human history but surely in the history of the earth as a solid body, took place in Chicago in December, 1942.

This significant event was not spectacular, since it was visible only on instrument dials, but it confirmed the ideas of a group of scientists who by that time were operating within the framework of the far flung Manhattan District.

Among the ideas confirmed was the prediction that natural uranium in a lattice of carbon will form a controllable reactor in which non-fissionable U-238 can be transmuted into fissionable plutonium. This is only true, provided both substances have been freed from neutron-absorbing impurities.

It should be emphasized that the entire atomic energy problem as we know it hinges on a fairly rare isotope of uranium which itself is as rare in the earth's outer crust as silver. This isotope, called actino-uranium or U-235, is the one kind of atom provided us by nature in usable quantities, which breaks or fissions when its nucleus is struck by a slow or fast neutron. There are two other nucleii which have this property: plutonium which is transmuted from U-238, and U-233 which is transmuted from thorium.

The Beginning

These facts were known to the Anglo-American scientists in 1942. Our scientists also before that time had the concept of a fast nuclear chain reaction using concentrated fissionable material, and giving a sudden release of a great deal of energy. It was natural of us to credit the Germans with at least as much insight into this problem as we had, since the discovery of uranium fission was based on German scientific work. If we had known how inadequate the German concept and approach were from 1942 to 1945, it is probable that we would not have made a full-out attack on the problem.

This chain reaction of human and atomic events led to the first fast chain reaction in the world's history, on July 16, 1945. This bomb had been assembled at the top of a 100-foot steel tower in the New Mexico desert by a group of scientists. During the night it had weathered a thunder storm. The weather cleared by 4 a. m. sun time and at 4:30 just as dawn was breaking in the east there was a flash that lit up the whole state. No instruments or subtle imaginations were needed this time.

REAR ADMIRAL PARSONS

Exactly three weeks later the same flash and explosion announced the Atomic Age to the world. The chain reaction of human events then became almost as spectacular but much less predictable and controllable than the nuclear reaction in an atomic reactor or bomb.

I will attempt here to dispel some of the illusions which have been a fairly natural result of the impact of the bomb on the minds of articulate writers and the general public.

Most of these illusions came from the suddenness of the events and the strangeness of the new world of atomic and nuclear physics which burst into the headlines as World War II ended. One might express the common man's reaction by saying "after this anything goes!"

Those who were generally familiar with the progress of nuclear physics since it began in 1896 with the discovery of radioactivity and who had also struggled several years with the problems of translating theories into an atomic bomb, knew that there was nothing sudden about the development. Also there was nothing easy about it.

The Lean Years

The two generations of the Twentieth Century had produced a numerically small but brilliant group of nuclear scientists and had also produced knowledge of location and processing of ores rich in radium and its parent uranium.

This meant that from 1940 to 1945 we cashed in on two generations of accumulated capital in the form of scientific talent and techniques, and geological and chemical "know where" and "know how."

Since 1945 we have certainly not come to a halt in this field of atomic energy, but we have arrived at a point where major progress depends on long-haul work.

The first long-haul solution is to train the large number of students who have talent in the field of nuclear physics and chemistry. To do this we need in the universities most of the inspired nuclear scientists who made the 1942-1945 mass attack on the atomic energy problem. Until this new crop of students is trained and seasoned it will be unwise to launch huge applied research and development programs which could only be carried out at the expense of teaching. For this reason I call the next five years "lean" as measured in the economy of human talent.

The second long-haul problem has to do with geology and the processing of ore. We need to start where the radium-seekers ended in 1940 and make a geological search of the world for ores that are rich in uranium and thorium. At the same time it is necessary to work on the development of methods of processing low grade ore. It is difficult to predict how long the "lean" years in the

uranium-thorium economy will last, but one might guess five to fifteen.

The third economy which operates in the atomic energy field is the dollar economy. It is almost inconceivable that further development in this field would be hampered by lack of financial support. The principal hazard could come from uncoordinated autonomous projects which might compete for the available human and fissionable material. This danger should be avoided by the provisions of the Atomic Energy Act which assigns to the Commission a monopoly in the field.

The development of atomic power means first that high-temperature, chain-reacting piles must be designed, built and then exhaustively tested. All of the atomic energy piles built during the war were of the low-temperature type. So far, high-temperature piles exist only on the drawing board. Several of these experimental power piles may be ready for operation before the 1950's.

While the scientists and engineers are developing the first power piles they must work out solutions to the metallurgical, thermodynamic and shielding problems.

If we are predicting a time scale for atomic power development we might expect the engineering to take some five years after the first experimental piles begin high-temperature operation.

Atom Power Potential

Assuming that in the 1950's high-temperature atomic power piles have been developed to the point of practical use, the question is where will they fit in the power picture.

Two important features of the atomic energy boiler are the pleasant fact that the fuel is for practical purposes weightless and the unpleasant fact that nuclear fission inevitably results in intense radioactivity which, unless controlled by heavy shielding, is very dangerous to living beings.

Another controlling factor arises from the fact that a power-producing chain reaction takes place only when there is at least one critical mass of active material. We might illustrate this by saying that a ship could cruise a thousand miles burning a few grams of nuclear fuel, but in order to have the pile burn at all there would have to be a relatively huge amount of nuclear fuel always in the boiler.

This is one reason why development of atomic power plants for propulsion of unmanned guided missiles will have to be very carefully controlled in every sense of the word. As you know each test flight of these missiles ends in a crash of some sort. An atomic powered missile in which each test flight lands perhaps a thousand miles away in some remote ocean or mountain can hardly be accepted until we have a real abundance of active material.

Difficulties in Atomic Propulsion

There are two other reasons why missiles, even though they eliminate the human shielding problem, will require major engineering development of atomic power on the ground before they take to the air.

The first difficulty applies to gas jets used in both rocket and jet propulsion. When ordinary chemical fuel is burned in the fast moving gas the whole mixture heats up and there is only a combustion problem to solve. However, a nuclear fire is very different; it cannot burn in the moving gas and must therefore heat the gas through a metallic surface. This major problem of heat transfer will challenge the best efforts of scientists and engineers.

The second difficulty applies only to rockets. It arises from the fact that a rocket gets its thrust by ejecting part of its own mass to the rear. This means that a nuclear powered rocket must carry along some gas to be heated by atomic power and form a jet. The most efficient gas for these rockets is hydrogen, so we can say that space rockets with atomic power cannot have a practically unlimited range since when they run out of hydrogen they have no more thrust.

In the case of manned aircraft, assuming that a compact high-temperature power pile is available the problem of shielding the crew from neutrons and gamma rays must then be solved. Fairly pessimistic calculations by nuclear physicists who have studied these designs lead to the conclusion that the weight of shielding will be so great that it can only be carried by an airplane of more than the weight of the B-36.

Naval vessels particularly submarines could be tremendously increased in effectiveness by use of atomic power. While the weight and space limitations are not so great as they are in aircraft, the shielding problem is still serious and there also is the fact that the crew must live with the power plant for weeks and months. They also must be able to repair and overhaul the plant.

Nuclear powered boilers to heat communities and generate electrical power for industry may be economically justified in areas which have little coal or hydraulic power. The distribution problem in the case of power generated by nuclear reactors will be essentially the same as that of present systems. Some of our best-informed experts have estimated that at least a generation will pass before there is anything like general use of nuclear power in industry.

In this discussion I have deliberately emphasized the serious problems and difficulties which must be overcome before atomic energy can be generally used as a source of power. This is to bring out the fact that many years will pass before all of these long-haul problems are solved.

These difficulties have not in the least discouraged the newcomers in the atomic energy field. In fact there is so much inspiration and determination to go ahead regardless of obstacles that the "graybeards" of atomic energy spend much of their time trying to keep the enthusiasm in bounds.

So much for atomic power as of 1947.

The atomic age as it applies to artificial radioactivity began in the middle 1930's. The advent of the atomic pile made radioactive isotopes available in greatly increased quantities.

Radio Isotopes

These isotopes have increased man's perception in physics, chemistry and biology up to a millionfold.

Radio phosphorus and iodine have proved very beneficial in treating non-cancerous disorders of the blood and thyroid gland. Medical scientists have high hopes that within five or ten years use of radio isotopes in organic compounds will combat cancer.

It is soothing to talk of the problems of developing atomic power and use of radioactivity in research. This is primarily because these problems are technical. Barrels of ink may be spilled and scientific reputations may be won or lost in solving them, but blood does not flow.

The evidence in the field of nuclear fission is extensive and it all points toward the conclusion that the atom and its nucleus are law abiding. The stability of a nuclear chain reaction is very great in comparison with a chemical chain reaction. For example, the nuclear chain reaction in an atomic bomb ceases to multiply at an instant when the temperature is in the millions of de-

grees and the pressure is many millions of atmospheres. The reason is simply that expansion has reached the point at which more neutrons escape than are replaced by each new generation. So the nuclear fire goes out with most of the active material still unburned.

Added to this evidence of law abiding stability is the safety achievement of the wartime operation of the Manhattan District and the Bikini tests which establish beyond doubt that atomic energy can be controlled if man has the will and skill to do it.

Atomic Energy Commission

In other words, we already have control of the atom—what we are worried about is control of the human.

Within eighteen months after Hiroshima the United States had placed our atomic energy development under very firm control by a government monopoly. An international monopoly had been proposed by Baruch for the United States in June, 1946, and the Baruch proposal had been adopted with no essential modification by the United Nations Atomic Energy Commission on December 30, 1946.

The fact that Russia abstained from voting on this proposal, and beginning in June, 1946, and ending in March, 1947, has announced fundamental disagreement with the Baruch plan is not happy, but also it is not tragic. There is still time for solving this among the other long-haul problems. We have put forward a radical, far-reaching proposal for international control. It has been carefully examined and supported by many of our best informed statesmen, scientists and industrialists. If it was sound in 1946 it will also be sound in 1950 or 1956, meanwhile the world will not have come to an end.

One point has received little attention in the general clamor over the bomb. That is the fact that mere possession of the bomb does not confer with great reliability or even with any worthwhile chance of success.

I spoke earlier of long-haul problems which are faced by our scientists, engineers and statesmen in the field of atomic energy. These are matched by equally difficult long-haul problems in the field of supersonic missiles with ranges of thousands of miles. Barring radically new discoveries in the fields of propulsion and control, it is quite possible and even probable that these problems will not be solved within the coming generation.

In the interim we have the possibility of attack by subsonic manned or unmanned vehicles against which there are several kinds of defense. These defenses include jet fighters armed with rockets, and ground launched anti-aircraft guided missiles.

It has often been said that there is no defense against the atomic bomb. This probably assumes a fully developed push-button war machine using inter-continental supersonic rockets. As I have indicated earlier, the only fully developed part of a push-button machine so far is the push button.

There are actually three kinds of defense against the atomic bomb.

The first defense, which would be positive against surprise attack, is political and would be accomplished by operations under the Baruch plan.

The second form of defense is the ability to retaliate.

The third defense is passive and consists of taking steps to minimize the effect of atomic attack. The Bikini tests come in the third category of passive defense. The technical reports of these tests are now nearly complete and have been acted on by the Joint Chiefs of Staff Evaluation Board.

In retrospect, it can be said that both tests were of great value: the first test because it provided an excellent verification of predictions based on past experience; and the second because it gave us a preview of what is a most deadly and paralyzing form of atomic attack. If the second Bikini test, in which the bomb was fired below the surface of the lagoon, had not been conducted, it is quite possible that we would have gone on for years in the atomic age with only partial and unconvincing theory to warn us as to the possibilities of shallow underwater atomic explosions in harbors near cities and industrial areas.

The implications of the results of this second Bikini test are already of the greatest interest to those who are planning for radiological safety, both military and civilian.

On the subject of planning for the future, we have only the choice of two imperfect systems. If we look ahead, using only facts now available to science, our predictions will hold accurately for only a few years, because new discoveries which cannot be predicted will materially change the picture. On the other hand, if we predict optimistically, attempting to take into account those new discoveries, we also will be wrong, because we will unconsciously assume discoveries which will solve our most pressing problems of the present.

I would conclude by asserting again that the atomic energy comes from nature but it is—more than any other of man's inventions—a product of human thought. It has created ten problems for every one it has directly solved. It has given science wonderful new research tools, and most important, it has stimulated our best minds to attack the problems. I believe that progress made in the short space of twenty-two months toward solving the problems of the atomic age indicates that, while the problems are as colossal as the concept of atomic energy, they are primarily human and man will be inspired to solve them.

Fuel Economy Conference, The Hague, Sept. 2 to 9, 1947

THE World Power Conference has announced an international Fuel Economy Conference to be held September 2 to 9, 1947, at The Hague, Netherlands. Subjects for discussion will be the production, distribution, and utilization of fuels of all types, with special reference to war-time experiences and to developments realized since 1939, or now in prospect. The Conference will include an inspection trip at the Netherlands State Coal Mines in the Province of Limburg, together with the associated electric and gas works.

The Netherlands National Committee, at whose invitation the Conference is being arranged, includes Dr. Ir. J. A. Ringers as Honorary President, Ir. G. J. Th. Bakker as Chairman, and Prof. Ir. J. C. van Staveren as Second Secretary. The program is being arranged in cooperation with the national committees of the 32 other member countries.

Application for membership in the Conference may be addressed to Mr. H. C. Forbes, Treasurer and Secretary, Executive Committee of U. S. National Committee, World Power Conference, 4 Irving Place, New York 3, N. Y. Members will be furnished with advance copies of all papers to be presented and will be afforded an opportunity to purchase the bound transactions at a reduced price.

During recent months reports on "Fuel Economy since 1939" have been issued by the national committees of 8 countries: Argentina, Denmark, France, Great Britain, Ireland, Netherlands, Sweden, and the United States. These picture the war-time fuel situation in considerable detail. They have been published principally by the Central Office of the World Power Conference, in London, and will be available in limited quantities in this country through the United States National Committee.

New York State Electric & Gas Corp. Receives Coffin Award

THE New York State Electric & Gas Corporation, of Ithaca, N. Y., received the Charles A. Coffin award, most highly coveted distinction

for which electric utility companies can compete, during the Edison Electric Institute's 15th Annual Convention. The Award was presented to Ralph D. Jennison, President of the New York Company, by Charles E. Wilson, President of the General Electric Company, at the Wednesday evening (June 4) session, on behalf of the Charles A. Coffin Foundation.

The Award, established in 1922 by the General Electric Company as a tribute to the memory of the late Charles A. Coffin, founder of that company and one of the great leaders of the electric industry, is given annually to "the competing company which has achieved the greatest advancement in its operations and physical plant, thereby making a distinguished contribution to the development of the electric light and power industry for the convenience of the public and the benefit of the industry."

In an accompanying statement, the judges who selected the New York State company commented particularly upon the company's new Jennison steam generating station, using fuel once considered of little value, for exceptionally low-cost production of power; its record in bringing electric power to farmers, and encouraging widespread use of electricity in farm operations; marked improvements during 1946 in the company's financial structure; and splendid records in sales and service, rates, employee, customer and public relations, and in operations and physical plant.

The 30,000-kw Jennison Station, located at Bainbridge, N. Y., was built during the war period of shortages, and features an overall design for simplicity and conservation of then critical materials. Aluminum, for example, was used extensively, to conserve copper. The plant was designed to use No. 4 buckwheat anthracite, a low-cost fuel, which has resulted in substantial operating economies.

Serving a largely rural area, the New York State Electric & Gas Corporation has electrified 87 per cent of all farms in its territory, and has made service available to another 4 per cent of farms. A total of 3,849 miles of rural lines has been built during the last three years and kilowatthour use per farm has increased by 54 per cent in the last five years.

The award to the New York State Electric & Gas Corporation marks the 25th anniversary of the Coffin Award, which has now been received by 19 companies. No awards were made in 1942, 1943 and 1945. As a tribute to the magnificent contribution of the electric power industry to the war effort, the 1944 award was bestowed collectively upon the entire industry. The award is a Gold Medal with supplementary cash prize.

CHARLES E. WILSON, President of the General Electric Company (right) presents the Charles A. Coffin Award to RALPH D. JENNISON, President of the New York State Electric and Gas Corp. at presentation ceremonies, Wednesday evening, June 4th, of the EEI Annual Convention

Pitfalls in the British System

By Brigadier-General Wade H. Hayes

Managing-Director, Edmundsons' Electricity Corporation, Ltd, London

An address read before the Fifteenth Annual Convention of the Edison Electric Institute, Atlantic City, N. J., June 5, 1947, by H. S. Metcalfe, West Penn Power Co. in the absence of General Hayes

YOUR Institute has been good enough to invite me to talk to you about: (a) The Power Industry in England; (b) What Is Happening to the Industry?; (c) Reasons for Such Happenings; (d) What Could Have Been Done to Forestall Them; (e) What the Future Appears to Hold for Electric Progress in England; and (f) What Are the Salient Lessons for Electricity Companies in America to Learn Therefrom.

The Power Industry in England

After suffering for years from handicapping legislation resulting chiefly from dual ownership—public authority and company—early piecemeal growth gave place to coordinated development and expansion at a rapidly increasing tempo.

For example, in the 23 years between 1922-1945 consumption for all purposes increased ten-fold. In the last 10 years of that period it increased by 145 per cent. In 1921-1922 it was 73 units per head of the population. It is now 700 units per head—and there are now two million more heads than there were in 1921.

Local Authorities serve 7½ million consumers (all kinds); companies, nearly 4 million. But, whereas Local Authority consumers are packed into one-third of the island, company consumers are spread out over two-thirds. That explains why Local Authority transmission and distribution capital costs per consumer are £30 as against £45 per company consumer. Average prices to company domestic consumers have decreased from 4.52d per unit, 1928, to 1.927d, 1945. For some years the average has been barely ½d per unit above Local Authority average.

Had supply conditions been reversed, with costs and greater consumer strength favoring companies, the company consumer would have had a vastly bigger price advantage over the Local Authority consumer. This is indicated by the fact that the companies' average selling price to power and domestic consumers combined, in 1937-1938 (last available official statistics) was 15 per cent less than the Local Authorities':

Power Companies—0.877d per unit sold
Local Authorities—1.028d per unit sold

BRIGADIER-GENERAL HAYES

Capital expenditure of the industry (including £57 million on the Grid) has reached £750,000,000. The assets, at today's value after depreciation has been approximated, at more than £1,000,000,000.

Prior to the advent of the nationalizing bill the industry had planned to spend about £300,000,000 on generation and distribution. The companies would have borne £200,000,000 of this new expenditure. They had budgeted to spend this in the next five years.

What Is Happening to the Industry?

The bill to nationalize the industry has passed the House of Commons and will come before the House of Lords this summer. It is unlikely that they will throw it out. The Lords are almost certain to send it back to the Commons with a number of amendments. If these drastically alter the bill they will be rejected. The bill will then go back to the House of Lords and . . . I prefer to leave that sentence unfinished.

My boldness does not run to prediction in the present state of affairs in Great Britain. Socialists are all out to smash the capitalist system as at present applied to key industries. At the same time they are after monopolistic control of them. Their design is not to put the electricity industry under the control of a democratically elected Parliament. It is to become a permanent asset in Socialist power politics.

They are setting themselves up as the new capitalists. Unscrupulously extracting the purchase price from the taxpayers, they nevertheless propose themselves retaining all voting and controlling rights. This fact emerges quite clearly from the composition of the Committee just appointed to give form and finish to the reorganization proposals.

Mr. Emanuel Shinwell, proudly boasting lifelong agitation and frankly admitting no knowledge at all of the electricity industry, will be its supreme head as soon as it becomes State owned. He it was, as Minister of Fuel and Power, who announced the new Electricity Organizing Committee in the House of Commons. The chairman is Lord Citrine, former general secretary of the Trades Union Congress. Before that he was assistant general secretary of the Electrical Trades Union. And before that, Mersey District Secretary of the ETU. In the eyes of a Socialist Minister of Fuel and Power these trade union credentials apparently rank as adequate qualification for the managing directorship of a £1,000,000,000 industry.

Lord Citrine's appointment is not temporary. *It is permanent.* Under him will serve another trade union official—Mr. E. W. Bussey, General Secretary of the Electrical Trades Union. Formerly a junior engineer in the West Ham (London) Corporation power station, he was upgraded to trade union official rank via the London tramway service, in which he was a charge engineer. He claims to be a Marxist

Socialist. Judging by his unbridled attacks on company enterprise in his trade union journal he lacks no assurance about being able to hold down one of the biggest administrative jobs in the nationalized industry. At all events, he is to get his chance, thanks, it would seem, to his trade unionism and politics. Or can it be thanks to the refusal of bigger men to line up with Emanuel Shinwell and trade unionist Lord Citrine?

With these two will be Sir Johnstone Wright, General Manager, Central Electricity Board, Mr. J. Hacking, chief engineer, CEB, Lt.-Col. E. H. E. Woodward, General Manager, North-Eastern Electricity Supply Company, and Mr. J. Eccles, City Electrical Engineer, Liverpool. Technicians all, in a sense, they are somewhat localized technicians. They will be faced by a new set of technical problems, complicated administrative issues, disguised political considerations, parish partisanships and local jealousies.

Their job, as directed by the bill, will be to smash the present organization, then weld together again, out of the bits and pieces, 14 separate junior organizations. Each will be responsible for the heating, lighting and powering of one-fourteenth of England and Wales. (Scotland is separately provided for under the Bill.) These bodies will be known as Area Boards. Each will have a Chairman and seven members. In each Area will be a Consultative Council, composed of a minimum of 20 members. Altogether there will be nearly 400 officials.

Over these junior setups will be the Central Authority, composed of a Chairman and seven members. It is over this Central Authority that trade unionist Lord Citrine will preside in permanent state. Away and above him, and the Central Authority, will be all-powerful Emanuel Shinwell. His powers of preferment and rejection are to be superior to Parliamentary authority.

This is totalitarian dictatorship with a vengeance. It is exercised by a man whose backing in the minefields alone has saved him from the sack, even though the public rank him as the most disastrous of the failures in the Socialist Cabinet.

Reasons For Such Happenings

Before dealing with the pitfalls inherent in what is to be the new British system, let me try to sketch in the events leading to the sorry mess. On the Socialist side they have all been positive; on the free enterprise side, entirely negative.

For the last half century the Socialists have been steadily and unceasingly propagating the theory that private profit is contrary to public interest. This propaganda was kept up even during the war, with the knowledge and consent of the Socialist leaders serving in the Coalition Cabinet from 1940 to 1945. This is not an assumption. It is a fact, frankly acknowledged by Prime Minister Attlee. The Socialists refused to agree to a *political* truce during the war. They agreed only to an *electoral* truce. This meant that neither Party contested Parliamentary seats when they became vacant. Thus, all through the war Socialists campaigned for their political creed. They were helped tremendously by the trade unions, whose active members were generally shop stewards, and therefore favorably placed for influencing the workers—including vast numbers of women who were drafted into industry and qualifying for the vote for the first time.

Wartime Politics

The Trade Union Conference continued to meet yearly. They played a vital part in shaping the wage earners' attitude towards political questions. TUC leaders and Socialist Party leaders were able to hammer out an agreed policy so that they had something concrete to offer the public just as soon as an election became possible.

The Conservative Party, on the other hand, stopped every kind of political activity and concentrated exclusively upon the immediate business of winning the war. Headquarters staff was reduced to a mere skeleton, and in effect ceased to function as a central organization. Divisional offices all over the country were closed; their personnel migrated either to the Services or industry. This total subjection of Party loyalty to national salvation was a magnificent gesture. It may well yield a handsome return in good time.

But there can be no gainsaying that the first result was catastrophic to the Party's political interests. Not only had they no time before the General Election was upon them to prepare a policy and programme rivalling the Socialists'. They lacked the means of reaching the public with effective propaganda. In relying upon Winston Churchill's immense reputation as a war leader they overlooked the years of underground propaganda in factory and workshop which paid tribute to him as a military hero but derided and slandered him as a politician. The Conservative Party's patriotism may have been carried to unnecessary extremes, but I cannot help feeling that the major blame for the success of the Socialist campaign lies with leaders of industry. They had it in their power to counteract the politically disruptive activities of the TUC. Instead, they buried their heads in the sand and refused to admit any connection between politics and industry.

Poor Public Relations

It has long been a matter of astonishment to my English newspaper friends that whereas the TUC has no difficulty in making front page news, the Federation of British Industries has never been known even to make the effort. The TUC Annual Conference, for example, has been a national event for years, and treated as such in the Press. The FBI's annual gathering stirs no public interest anywhere. The Press cuts it to a paragraph and buries it in an inside page. Even this exaggerates its public influence. The great mass of people in England neither know nor care what the FBI thinks about anything.

On the other hand, literally millions are vitally interested in the opinions and decisions of the TUC. You would never think it is the members of the FBI who are, for the most part, employers of the members of the Unions comprising the TUC. There must be something wrong somewhere to produce this crazy lack of balance. In my view it is an apparently inherent inability on the part of English employers to recognize that they have any duty to the public other than to give them value for money in the commodity they supply. There is an aloofness which plays into the hands of the Socialists preaching class prejudice.

Employers do not try to get near to the people; they never attempt to explain themselves, nor their part in national life. Their total concentration on running their business feeds the public delusion, so assiduously capitalized by the Socialists, that their interests are exclusively selfish, and persisted in at the expense of the public. To hear the Socialists talk one would never imagine that the leaders of industry had anything to do with such miracles of free enterprise as Pluto, Fido, the Mulberry Dock, the Bailey Bridge or Radar, to

mention only a few of the achievements of brain before brawn came into the picture.

All the credit is given to brawn, just as all the credit is given to the common soldier for winning the war. God knows I am not belittling brawn or the common soldier in saying this. Both played magnificently their indispensable part in winning the war. But while the Socialists have harped on their part until they have made the working men feel that they are the fount and mainspring of all intelligent and worthwhile action, leaders of industry have maintained a stony silence.

It was as if they chose deliberately to treat the public with contemptuous indifference. The truth is that they have found it impossible to break from the peculiarly British tradition that politics and business are things apart. With a pigheadedness astonishing in a race of really brilliant industrialists they have refused to square up to the fact that Socialists have been teaching the workers for years to believe that industry can be made the instrument of political policy.

During the war, and with more elaborate insolence during the General Election, the Socialists described every industrial achievement as the direct result of Government control. They further argued that what could be done in the haste and flurry of war could be still better done by a *people* and *Government* unharassed by enemy action. Going still further, they declared that if the people *owned* the basic industries they would get all the profits as well as all the service. They would be immune from the risk of unemployment, since they would be their own employers; they would avoid the booms, which filled the rich men's pockets, and the slumps, which brought starvation to the workers. This poisonous drivel was poured into the ears of the workers throughout the war. Neither the FBI as a body, nor leading industrialists, as individuals, attempted to provide an antidote.

What Could Have Been Done to Forestall Them?

The electricity supply companies afford an example with which I am most familiar. There can be no shadow of doubt but what these companies have done a fine job of work. Their record will compare favorably with the industry in any part of the world. It would have helped to forestall their enemies to have shouted that from the housetops. It was not even whispered.

They have been perniciously misrepresented to the people of Britain as monopoly racketeers who have held up any development which did not guarantee huge and unreasonable profits. Nothing could have been easier than to disprove such charges. Nobody attempted to do so—until Edmundsons gave the lead. And then, amazingly enough, the matter was impertinently raised in Parliament. A socialist member actually questioned the right of my Corporation to spend our own money in publicizing the merits of our own service. That is a significant sidelight on the mentality of the people with whom we have to deal.

The story we had to tell—not only of Edmundsons' Corporation, but of the industry as a whole—was one of continuous progress, improving service and reducing prices. We had to correct the absurd parallel between favored local authority undertakings and penalized companies, which had constantly been drawn by the Socialists to illustrate alleged superior efficiency of publicly owned undertakings.

What the Public Didn't Know

In short, we tried to educate the public in facts, figures and performances. We tried to explain such elementary details as to why it was possible for a local authority serving thousands of consumers packed into one square mile to sell electricity cheaper than a company serving only a few score of consumers widely scattered over a square mile of rural territory. We had to explain that but for our presence in those country districts the rural communities would not be able to get electricity at any price because local authorities would not risk the expense of starting an undertaking to serve them. I doubt very much whether anybody, apart from local councillors, knew why companies were operating in the thinly populated countryside while municipalities restricted their service to their own compact and substantial communities of ratepayers.

It is certain none of the general public knew—

a. that municipal electricity areas covered only a third of the country and absorbed two-thirds of the population;

b. company areas covered two-thirds of the country but absorbed only one-third of the population.

How could they know, when nobody had bothered to tell them? Nor had anybody before the war bothered to tell them that the companies had plans for making electricity available to all their accessible potential consumers. This development would actually have been completed by 1945 had the war not intervened. To have blazoned that on every hoarding, splashed it in newspapers, voiced it from public platforms would certainly have helped forestall nationalization—if any action by the industry could have done that.

Status of British Utilities

The industry as a whole was moving swiftly and naturally to finalized improvements. Its progressiveness in the 20 years before the war provided abundant justification for public faith in its ability and willingness to meet its responsibilities.

Even during the war, when coal rose from an average of 14/10d per ton to 43/4d, when basic materials went up by nearly 200 per cent and wages in the industry by 175 per cent; when, in short, the general cost of living rose by 140 per cent, electricity alone of the items in the Briton's family budget showed no increase. In 1939 it was 60 per cent cheaper than in 1931, and so it remained despite increasing costs all round. One would have thought that such practical evidence of competence and efficiency could not possibly go unnoticed. It did, and chiefly for two reasons—equally responsible.

First, because of the unceasing propaganda of the Socialists on the profit bogey and the danger of the monopoly of such a public utility falling to profit-making concerns. They thrashed this monopoly bogey with comic ferocity in view of the fact that 60 per cent of the industry was already publicly owned. But it served the purpose of directing attention away from this fact and concentrating it upon the companies and their alleged shortcomings—particularly in the field of rural electrification. Here they were further assisted by what was for them the fortuitous fact that the war had brought sufficient prosperity to farmers to make them electricity conscious.

Before the war it was like squeezing blood out of a stone to induce farmers to use electricity for other than lighting and radio. After the war they clamoured for it. But with so much electrically driven agricultural machinery going out of the country in the Socialist export drive the farmers were deprived of the opportunity of using enough elec-

tricity to balance the expense of installation.

The second reason why the industry's really phenomenal progress passed unnoticed was, as I have already stressed, that nobody drew attention to it. Up to a few months before the General Election the Socialists had the propaganda field to themselves for years on end. Then a few of us tried to whip the industry to a realization of what was bound to happen if the Socialists won the election. We tried to force the rest to eleventh-hour desperate action. It was heavy, depressing and unfruitful going.

After the election there were drastic changes in our Public Relations Committee and its activities. For a time it looked as if we might exert some influence in shaping the inevitable legislation. Then we found our front was not as solid as it could and should have been. It lacked, too, the zest for carrying the fight into the enemy's camp. Then, when the Bill came, it was found to contain a clause which virtually prohibited propaganda against nationalization.

The infamous Clause 25 not only aimed at keeping company assets intact for the use of the future Central Electricity Authority, but threatened to take from directors' pockets any money spent which would not have been spent had there been no Electricity bill. This iniquitous interference with individual liberty savours strongly of the Gestapo tactics prophesied by Mr. Churchill. Whether Mr. Shinwell would have dared to include such a silencing clause had the industry shown virulence and strength in the years before the Socialists came to power, is, I think, open to question. Certain it is that he traded on the known division about an all-out fight against nationalization. I believe, too, that that weakness is also, in part at least, responsible for compensation terms which add insult to injury.

In some respects the local authorities are to receive even meaner treatment. Their undertakings are to be taken from them without compensation of any kind. The Government will graciously accept outstanding liabilities in respect of the undertakings they grab, but that will still leave the local authorities poorer by £200,000,000 as a result of nationalization.

What the Future Appears to Hold for Electric Progress in England

It is expected that the Bill will become an Act some time this autumn, but further months must elapse before the bureaucratic control begins to function. The Central Authority and Area Board paid officials, totalling over 100, will have to be appointed before it will be possible to make a real start on plans affecting the future of the industry. There is the Citrine "Organizing" Committee, but how much and what they will be able to organize before the State actually takes over is very much a matter of speculation.

Time is bound to be lost in the creation of area machinery capable of functioning independently although forming part of a national organization. It will have to be very carefully and adequately coordinated and integrated. This is no playtime job. It will call for the best brains in the industry, and for independent enterprise of the highest order.

Bureaucratic Slowdown

This is where the breakdown is likely to occur. Look at the composition of the Organizing Committee, and ask yourselves. It goes without saying that officialdom will take precedence over enterprise. There will have to be general rules and regulations applicable, at least roughly, to all the 14 Areas as a whole. I fail to see how this can be accomplished without frequent recurrence of interferences on the part of the Central Authority in trying to accommodate the differences which are bound to arise between Areas and districts whose interests will, of necessity, be fundamentally localized. In circumstances such as these I estimate a two years' delay before even a start on the real work is made. God forbid that I should in advance characterize that work as "progress."

The first steps in rebuilding an industry you have disintegrated are not necessarily progressive towards something better than you have destroyed. All real *progress* has been brought to a dead standstill. And I cannot see that "Organizing" Committee making a better job of running the industry than my colleagues and I have done in the past. Knowing that Committee, I should add that this is not unmitigated egotism.

There are, in addition, a multitude of extraneous considerations also to be taken into account. Apart from all those connected with questions of materials, (which are certain to be in short supply for a very long time) there is the prospect of the nationalization of the gas industry. That very unlucky Organizing Committee will, presumably, have to bear the gas industry in mind in reorganizing the electricity industry.

Mr. Shinwell has already decreed that the electricity industry simply cannot be allowed to progress at the expense of gas. Your guess as to why is as good as mine.

What Are the Salient Lessons for Electricity Companies in America?

To such a body as I am addressing now this can quite properly be the shortest section of my remarks.

First and foremost, I would say beware of politics, beware of public ignorance of the industry, beware of timorous friends. Human nature is pretty much the same the world over; it is subject to the influences of environment.

Don't copy Britain and discount political cranks because they happen to be few and seemingly inconsequential. They used to be few and inconsequential in Britain.

Don't take it for granted that what has happened in England could not possibly happen in America. What has happened in England can happen in America if politicians infected with the Socialist or crypto-Communist virus are not challenged at every step.

Watch events in England closely. Use every opportunity of driving home to the American public the faults, failures and damaging effects of nationalization. Make it an important part of your educational campaign.

Extend that education to England. Keep England informed of the success of Free Enterprise. That may help to prevent the creeping paralysis of Socialism destroying American prosperity.

EEI Convention

(*Continued from page 192*)

Company, chairman of the Hydraulic Committee. He expressed the fear that private utility operators of hydro systems are much too prone to let Federal engineers take the spotlight in this field and should forge into the forefront in contributions and discussions.

Critical study of branch circuit characteristics and protection was reported by E. V. Sayles, Consumers Power Company, on behalf of the joint EEI-AEIC committee. It is attacking such factors as appropriate voltage and size of wire, appropriate functioning of the protective devices, and the frequency and starting characteristics of motored appliances.

Labor and Management—One Team, One Furrow

By Ralph Chaplin
Labor Authority

An address before the Annual Convention of the Edison Electric Institute, Atlantic City, N. J., June 3, 1947

LABOR and Management — one team, one furrow.

Strange that this formula for peace on the production front should be controversial matter. But it is.

You gentlemen know it and I know it, but how many of us know why?

Let us face a few facts.

You know, and I know that the long suffering American public, including the rank and file of Labor and Management —are fed up with costly work stoppages.

You know and I know that intermittent industrial paralysis tends to throw our entire economy out of balance, and that the results could be disastrous to the best interests of all.

You know and I know, that the majority of American citizens seem convinced that prosperity and security for all of us depend upon teamwork and uninterrupted production rather than disruption and industrial discord. And that powerful forces are in opposition.

These things are freely admitted high and low, in all quarters. And yet, so fashionable has the doctrine of "class hatred" become, that teamwork between Management and Labor is considered heresy by many otherwise good citizens.

Tolerance

Millions of dollars are being spent on appeals for "tolerance" these days. But this tolerance does not include the men who sign the nation's paychecks.

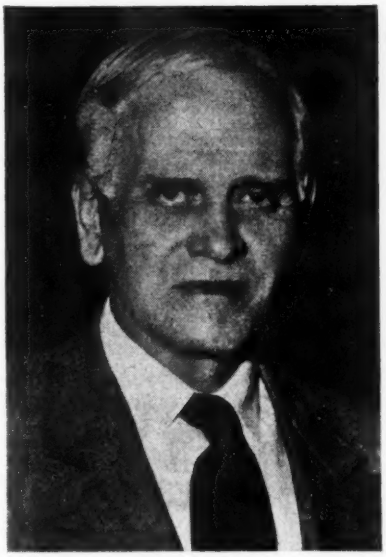
Neither does it include any philosophy favoring the action of American Labor and Management pulling together as one team to turn one furrow.

Are we to assume then that the only really dangerous tensions in contemporary American life are those of race, creed and color?

Personally, I don't want misunderstanding or discord anywhere along the line. I don't think we can afford misunderstanding and discord among our people in this period of world crisis.

Least of all do I want misunderstanding and discord on the production front where tension is presently more dangerous than any place else.

That is why I am speaking in favor



MR. CHAPLIN

of *class* understanding instead of *class* hatred.

National teamwork at this moment is every bit as imperative as it was during the war.

Let's try to get the overall picture into better focus. Let's try to face a few generally admitted facts. Let's try to get at the bottom of this thing.

Morale on the assembly lines tends to bog down. With it production units bog down and cost units skyrocket.

Wage disputes tend to become less and less economic in character, more and more political.

Economic pressure tends to displace economic law as a basis for wage adjustments.

Compared with the early days of capitalist development the strike weapon has assumed a dangerous, almost atomic dimensionality.

Time was when a few strikers could tie up the village mill. Now a few strikers have it in their power to paralyze our entire economy. By pulling a single lever or speaking a single word they can stop the wheels of production, cut off supplies of food, fuel, power and services upon which millions of citizens depend for life and well-being.

The implications of this "something new which has been added" to the labor picture are as appalling to the rank and file of labor as they are to any other segment of our population. Labor unionists have learned at considerable cost that they are part of the American public and, as such, responsible for public safety and security. But American wage earners are still bewildered for lack of ideological leadership. In fact the only really dynamic leadership they have is that of the demagogue.

Gentlemen, in my opinion this is the crux of the whole problem.

The politicians haven't given us this leadership, neither have the preachers or the professors. The conservatives have missed the bus, and so have the liberals. Management has never taken the trouble and the established labor movement has neglected to develop or expound a philosophy of its own.

Only the spokesmen and stooges of the world revolution have a distinct end, under certain circumstances, acceptable ideology.

All the Answers

Only the Red Quisling has all the answers. They are the wrong answers, true enough; but, having the field all to himself, there is little or no competition.

We have permitted the situation to develop, and we are still permitting it. At the end of that road is a situation in which labor—management relations will be completely out of control. That is what Moscow's Fifth Column in this country is working for. That is why some of us on both sides are learning that Labor and Management, one team, one furrow is not a pious wish but an imperative.

I have spent my life defending the underdog. I believe wholeheartedly in labor unions and in the principle of collective bargaining. But I am no longer ready to look upon the men who sign our nation's paychecks as America's No. 1 enemies. This is not to say that

the employers are perfect. I have seen them misuse their power—and seen them punished for it.

As a man of Labor, with Labor's interests at heart, I don't want to see Labor misuse its power—and be similarly punished.

I have lived long enough to see American labor relations lifted from the level of pick-handles and brick-bats to that of the conference table. I expect to live long enough to see labor relations reach the efficiency of sound business management, the dignity of American citizenship and the high level of Christian ethics. Peace on the production front requires new techniques, a new approach —a new philosophy.

I want Labor and Management *both* to profit by mistakes of the past. Many of you gentlemen have put in a lifetime building up the key industries of our great country while I, and others like me were helping to build up the American labor movement.

We both know that during these years there were periods of industrial strife and misunderstanding. It took some of us a long time to learn that it is more profitable as well as more creditable to pull together rather than pull in different directions. You know, and I know that we have been more willing to fight it out than to talk it over.

In view of the crisis that now confronts us, our differences in the past do not matter any more. But what matters now is that 140 million American citizens are dependent on the industries, which we built up in spite of our disagreements.

I have faith in America. I believe that, as American citizens, we can, and must, work out a basis for common understanding and common action.

I believe that there is nothing wrong with our American economy that uninterrupted production and distribution cannot cure.

American Fellowship

I believe that fellowship is one of America's greatest resources, and that disunity destroys fellowship just as erosion ruins the soil. I believe that fellowship is an indispensable part of our national know-how. We need an ideology based on this principle—and the will and skill to sell it to our own people and the people of the world in competition with other ideologies.

The industries represented here are not monuments to the strife and misunderstanding which has kept us divided. They are monuments to the basic American solidarity which have united us in spite of our differences.

You, gentlemen are on sure ground when it comes to the mechanics of production. But you are not yet on sure ground when it comes to ideological problems arising out of labor relations. I doubt if you realize the extent to which the productiveness of American industry can be invalidated and vetoed by the negative attitude on the part of your own employes. The answer is to win and hold the confidence of your employees by laying your cards right out on the table, by sharing your problems and responsibilities with them, by winning their trust—and keeping it every day of the year.

Long ago I took the position that management was making a big mistake in not selling American ideas along with American commodities and services. How else can you explain why it is that our own and other peoples look to America, for merchandise and to Moscow for ideology?

The Ideological Front

You gentlemen are functionally competent in matters of production, management, bookkeeping, advertising. But I still insist that you must not fail America and the world by permitting "south paw" theoreticians, at home and abroad, to assume the ideological leadership which your own employees had a right to expect from you.

Some of us in labor have been fighting the poisonous infiltration of communism for more than a quarter of a century. We took the brunt of the worldwide Muscovite invasion. We are still taking it.

Personally I know very little about management, bookkeeping and advertising. Few labor people are competent to pass judgment in such matters. But we are familiar with the philosophy of the dog-eat-dog labor relations of the past. We are also familiar with the philosophy of communism as registered by the international situation of this moment. We learned the hard way that Moscow plays marbles for keeps.

With the whole world divided into conflicting ideologies it is necessary for American labor and management both to know their way about. Phony economics add up to the phony economic demands and expectations. A phony social philosophy adds up to irrational mass behavior, phony foreign policies, phony political programs and principles. We of labor know that such things add up to trouble.

If you have any doubt about what I mean, let me refer you to recent utterances of Robert Nathan and—Henry Wallace.

Gentlemen, isn't it clear to you by this time that we can either extend to you the hand of fellowship, or shove into your faces the clenched fist of Marxian class hatred! Isn't it clear to you that you cannot expect American behavior from alien ideologies?

It all depends on whether we of labor are motivated by an American philosophy, or whether we follow the international communist party-line—whether we seek economic security based on uninterrupted production, or economic security based on debt claims against taxpayers. Whether we use PAC double talk and guile to make American free enterprise unprofitable and unworkable or whether we stand on our own legs as free citizens in a free republic.

Do you really want labor as an ally in the world-wide struggle for Freedom? I happen to speak for that considerable number of unionists who, over the heads of their union bosses, councils and federations, voted the New Deal into oblivion at the last national election. I speak also for reputable labor officials, AFL and CIO, who are in good faith, as American citizens, seeking to purge American labor unions of communist indoctrination and control.

We expect something more from you than plausible arguments in defense of private enterprise. It isn't enough that you join us in denouncing communism. You must also help us to formulate American labor policies based on American principles of freedom and fair play —and you must help us to make them stick.

Labor's New "Friends"

The whole picture has changed in recent years. Things used to be so simple when all we had to worry about was fighting the employers!

Today labor's new "friends" are proving to be every bit as dangerous as its ancient enemies.

It was the blandishments of the New Deal, rather than the pick-handles of Pinkertons that finally softened us up. Not only softened us up, but loused us up!

Capitalist exploiters of the old school

were tough, but there were ways of handling them. We are just beginning to learn that we don't handle the manherders of big government; they handle us.

Even the toughest of the old-time fighting "exploiters" had no intention of transforming free American wage earners into unwilling serfs of the state.

As for me, I don't care a hoot how tough our "class enemies" are. Just so they don't wear totalitarian ruffles on their panties.

The triumph of neo-liberalism is anything but a triumph for labor. It is instead a triumph for the Police State or the Welfare State, both of which are unacceptable to free labor and free enterprise.

Neo-liberals are back of the 8-ball—plenty. History may record the worst of them as out-and-out traitors; the best, as economic stumble-bums—or ideological bobby-soxers!

Blood and Fears

The so-called "radicals" have also missed the boat. They too look to the Kremlin for their daily orders, and to the United States treasury for their daily bread. In both cases people look to Russia for ideological counsel or example because they can't find such counsel and example at home. This I know from personal experience.

The "dictatorship of the proletariat" bogged down in blood, is surrounded by the miasma of international intrigue and conspiracy. By its long record of duplicity and broken pledges the Soviet bureaucrats have confirmed their betrayal of oppressed and downtrodden people everywhere.

Radical and liberal alike who greeted the Red Dawn so enthusiastically in 1918 had no way of knowing that the glow in the eastern skies was in reality the funeral pyre of Freedom.

In our foolishness we thought the Bolshevik revolution marked the birth of the "New Day." Instead we learned to our disillusionment that it started a monstrous reversion of the world's oldest and blackest form of tyranny.

Free government and free labor, in the American sense meant little to us until we saw them being consigned to the general conflagration. It took the sight of concentration camps crowded with once free labor unionists to bring us to our senses.

It took evidence of armies of war prisoners dragged into slave labor behind the mechanized war chariots of a modern Genghiz Khan to rebuke our folly. That disillusionment started many of us in labor on a rediscovery of American values. This is how they add up:

It was the American, not the Bolshevik revolution which gave freedom to the world. The outpouring of creative energy released by the American experiment gave immediate proof of the functional soundness of our way of life.

In spite of all setbacks and discouragement enough progress has been made to prove the moral and social practicability of the American idea. But will our dearly bought outpost of freedom be able to withstand the backwash of reaction from the old world?

Shall we be able to hold our own ideological competition with the totalitarian philosophies of Europe and Asia?

Can we make labor-management relations as sound as the rest of our economy?

Can free government, based on checks and balances, voluntary association and cooperation survive in competition with a world dominated by the godless ideals of brute force, expediency and statism? We must triumph with something more than American arms; we must triumph with American ideals also.

There is an old saying that "the whole world makes way for the man who knows where he is going." That is why we need an ideology of our own.

The enemies of American free labor and free enterprise have an ideology. They know where *they* are going. They are fanatically certain that levelling down—regimentation, sovietization, statism—are waiting for all of us at the end of the road. We think they are wrong. But we can't expect to prove it by opposing our democratic disunity to their ant-hill solidarity. Or by opposing our immature ideology to their highly specialized ideological efficiency.

Labor and management can prove it by establishing peace among themselves on the American home front. It is time to bury the hatchet, and the place to bury the hatchet is not in one another's skulls. Few of us in labor or management can afford the luxury of prolonged strikes any more. They are too costly. The conference table looks better to the rank and file of labor than it ever did before. That is one good reason why the employers should not make the mistake of trying to meet the problems of today with the attitudes of yesterday.

What America needs is simply the application of American principles to American problems, especially the labor problem. This means heading off trouble before we get into it up to our necks.

We can progress by trial and error in the direction of American relationships based on a distinctly American ideology toward new horizons of freedom and abundance, or we can retrogress in the direction of European tyranny toward inevitable regimentation and restrictions under an authoritarian state.

The American dream can find ultimate fulfillment only under conditions in which the individual is free to choose, to bargain and compete; the socialist nightmare can become a reality only when the free individual abdicates to the all-powerful state. Ideological warfare may prove to be the prelude to some other kind.

Survival of Freedom

Wars today and tomorrow, including the so-called "class war" are something more than a struggle for conquest or survival in the physical sense. Ideas fight for survival also. The religious wars of 400 years ago gave some indication of how desperately contested and fanatical such conflict can be.

In this clash of ideologies is involved the basic functional differences between the philosophy of American freedom and the philosophy of authoritarian statism which opposes it in this country and throughout the world.

The men who founded our free America were more interested in freedom than in regimented security. They were willing to take a chance. They were not afraid to compete with an unexplored continent and with one another in order to prove that they could make good. They didn't ask for a sure thing.

It has been said that men who would exchange freedom for security are destined to lose both.

That is where the main point of friction occurs. It is along these lines that the ideological warfare of today, tomorrow and many tomorrows will be conducted. On the one side is freedom to compete, freedom of choice, freedom to achieve and find fulfillment according to inborn ability, talent, enterprise; on the other side is freedom to destroy Freedom—energetic unwillingness to assume responsibility either for individual survival or the survival of the American way of life.

If the individual abdicates the state

must take over. Regardless of what it is called, it can only add up to one thing, centralized bureaucratic controls —statism, fascism, communism—the "Century of the Common Man" in which all uncommon men will be purged or liquidated by a new ruling class, the aristocracy of the politically trustworthy.

On the one side a weird revolutionary cult has assumed the proportions of a fanatical world-wide crusade; on the other there is strong and intense conviction that free men, free nations, can and will continue to live under a free economy in a free world.

American capitalism has for too long been blind to the urgent need of defending with fact and theory the principles upon which its free economy was founded.

This shortcoming may be excused on grounds that the pioneers of American industry were so busy concentrating on the job of devising, manufacturing and merchandising goods that they had no time to bother with social and economic theories embodied in their production and distribution.

Because of this neglect to compete with American ideas as well as American commodities the field has been left wide open for ideological competitors at home and abroad. The too-smart radical had *all* the answers.

Thus the cause of Freedom lost first the intelligentsia, then the educators and finally, labor and the liberals, who needed most of all a distinctly American ideology.

The world revolution has now assumed a recognizable pattern. Daily newspaper headlines and radio broadcasts give blow by blow descriptions of its onslaught against capitalism.

Many of them are telling blows, and not a few of them are being struck below the belt.

Neo-liberals may be happy about all this but I'm not. Revolutionary chickens are coming home to roost these days. And too many of them are mine.

Personally, I'm sick and tired of watching liberals put on their blinders —and scratch their wishbones.

What I see taking place on every side is no revolution at all. In Russia and her satellites the "down-trodden proletariat" has joined the "bourgeoisie" in forced labor under the whiplash of a new ruling class.

Knocking at the door of every parliament, factory, office and labor union in the world is the new elite. With a brief case in one hand and a "Molotov cocktail" in the other, he demands the keys to every home, and the combination of every safe.

Neo-liberals call all this "humanitarian," "progressive," "democratic." Neo-radicals call it the "world revolution."

I call it by its right name, World Reaction. To me what is taking place represents a throw-back to the darkest age of tyranny and despotism.

Few of us dreamed that out of our "social revolution" would arise a new ruling class just as arrogant, aristocratic and many times more predatory than its predecessor.

Few of us dreamed that in the socialist millennium we would merely exchange bosses. And that our "emancipation" would mean, not the end of the exploitation of man by man, but the beginning of the exploitation of men by the state.

None of us thought the victory of the proletariat would add up to a new ruling class of fat commissars, lording it over lean armies of involuntary serfs from the marble palaces of the old nobility.

How were we to know that at the end of every communist blind alley is a machine gun?

I am not disturbed about the future of organized labor, even "radical" labor. As long as freedom prevails in these states and is not altogether extinguished elsewhere, my kind will manage to survive, to learn, and to progress. In a free world, individuals, groups and nations can make mistakes and live to profit by them.

It took us a long time to learn that a Sheriff is the best substitute for a six-shooter. It is taking us a long time to learn that the conference table is the best possible substitute for picket-lines, pick-handles and tear gas.

We can no longer afford the luxury of divided loyalty. We can no longer afford to take a chance on group consciousness, race consciousness, class consciousness. Our highly integrated economy cannot withstand the impact of revolutionary strikes and mob violence.

A free people to remain free cannot risk survival by tolerating disorder. Knowing from recent memory the restraints of Fascist, Nazi or Communist dictatorships, some of us in labor, including the most lawless by nature, are inclined to accept disciplined freedom under laws of our own making.

Our real triumph on any front can be achieved only by standing united on American principles.

We must be right as well as strong.

A new, carefully worked out national labor policy is needed. This should be a basic preliminary in any move to set up machinery to insure peace on the American home front.

This new American labor policy calls for a revitalized American ideology, understandable and acceptable to the rank and file of labor and management, and to the public. It calls for a recognition on the part of both the unions and employers that they are minority groups, and, as such, at all times responsible to the American majority.

It calls for a realization of the fact that neither labor nor management has the right to stop the wheels of key industries, paralyze our economy, halt public transportation and communication or cut off supplies of food, fuel and vital power services.

It calls for a realization of the fact that Big Labor has no more right to become a monopoly than Big Business—and no more right to become dictatorial than Big Government.

It calls for a recognition on the part of every individual American citizen that only through continuous production and distribution, can we attain our group objectives and the objectives of the nation as a whole.

It calls for widespread understanding of the fact that making profits and declaring dividends are not criminal acts. That steady employment, at increasing wages, growing out of greater productiveness on the part of each individual results in more security, better homes, better and cheaper food, clothing, education, recreation and spiritual enrichment.

It calls for an educational campaign, starting in the front office and including every employee in the plant, every family in the community, the purpose of which is to sell the American Idea to the American people and to the world.

It calls for laying cards right out on the table—the conference table—and calling the cut. Communism flourishes only in dark places. Take the mystery out of American business and you will take the curse off of it.

Labor and Management, one team, one furrow, one goal, one purpose in the richest field in God's fruitful universe. One team, one furrow—a compact of fellowship under the laws of Man and God until this New America of ours shall yield the greatest freedom and abundance that this planet has ever seen.

Construction Cost Trends and Implications

By William F. Ryan

Assistant Engineering Manager, Stone & Webster Engineering Corporation

An address before the Fifteenth Annual Convention of the Edison Electric Institute, Atlantic City, N. J., June 4, 1947

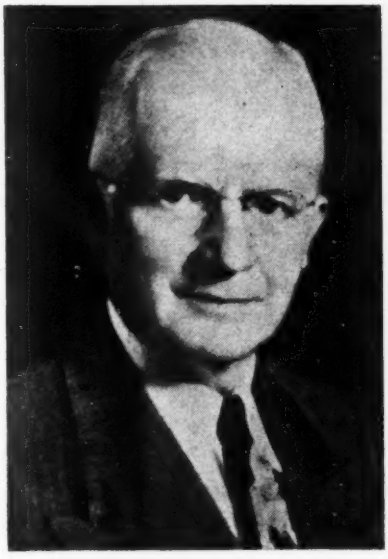
CONSTRUCTION costs are so high that we find it difficult to believe the figures. When we study the costs of a completed project, we instinctively feel that the work must have been extravagantly designed, or badly managed. Estimates for projected work are even more incredible, and this applies equally whether we plan to build a power station, a school house, or a new porch on an old house. We all know that equipment prices have advanced 30 to 50 per cent since VJ-Day, and nearly every day we read the news that some craft or other has been awarded an increase in wages, but we are still staggered by the cost of a new installation, when all the items are totaled.

There are many factors in the present high cost level, but the price of electric power is not one of them. Power is an appreciable item in the manufacturing costs of equipment and materials, but it is one component that has not contributed to the rising commodity markets. Throughout our dizzy cycles of booms and depressions, the end of each full swing of the pendulum has found electric power delivered to the consumer at lower cost than it was at the beginning, even though the cost of every major element entering into its production had increased during the same period.

Cost of Living Index

We are all familiar with various indices for Cost of Living. They consist of certain arbitrary combinations of relative costs of food, rent, clothing and other commodities and services. Fig. 1 shows the trend of some of the major items comprising the public utility's "Cost of Living." It indicates the relative cost from year to year of fuel, operating labor, electric plant and public utility bond interest, referred to the year 1914, the year that hostilities started in Europe for World War I.

The cost of fuel has had more violent fluctuations than some other components but the long term trend has been ever upward throughout the life of the electric power industry. It is now delivered



MR. RYAN

at about 2½ times the average price prior to World War I, and nearly twice what it cost just before World War II. It is not, however, even today at its all-time peak, which was reached in 1920. The hourly cost of operating labor has had many ups and no downs during that period. It is now at its all-time high, 5½ times what it was in 1914 and nearly twice what it was in 1939. A third major component in the price of power —the cost of plant—is the one with which we are here concerned. This factor also, when plotted against time, appears to have the profile of a roller coaster with steep ascents and less precipitous, but breathtaking drops, until we discover one important difference. The roller coaster always returns to the level from which it started. This, unfortunately, the cost of electric plant has failed to do so far, and there is no probability that it ever will.

All of these components of production expense had a sharp rise during and after World War I, and except for operating labor, a substantial decline three years after the end of hostilities. The subsequent trends have been mostly upward except for utility bond interest rates which are now at a relatively low level. Bond interest is not, of course, the total cost of money, but it is at least some comfort that high money rates are not coincident with high construction costs now, as they were in 1920.

Electric Production Costs

The index for bond interest is a national average, while that for electric plant has a more limited application which will be described later. The indices for fuel and labor were taken from single utilities in the northeast, because there are no continuous records for the industry as a whole. Nation-wide statistics are available for the price of coal at the mines, but that index presents a distorted picture for the majority of generating plants. A comparison of these particular indices with discontinuous records indicates that, as a long term trend, they are generally applicable and show, with reasonable accuracy, the conditions with which the public utility has had to contend since 1914.

Every appreciable item in production expense for electric power has risen steadily, cycle by cycle, but the industry has continued to deliver its product, the life blood of our national economy, at lower and lower costs. While skillful marketing has played an important part in this achievement, it is largely the product of technological advances and a triumph of sound engineering. The salesmen and rate-makers who sell more and more kilowatts year by year make it possible for the engineers to install larger generating units of higher efficiency. An even more important marketing accomplishment is the mounting ratio of kilowatthours sold to kilowatts of demand, increasing the earning power of every dollar invested in plant and most of the dollars spent for operating labor. In this assembly one may even give due credit to the type of management which, by consolidation and integration, has made it possible to eliminate inefficient production units and to avoid wasteful dupli-

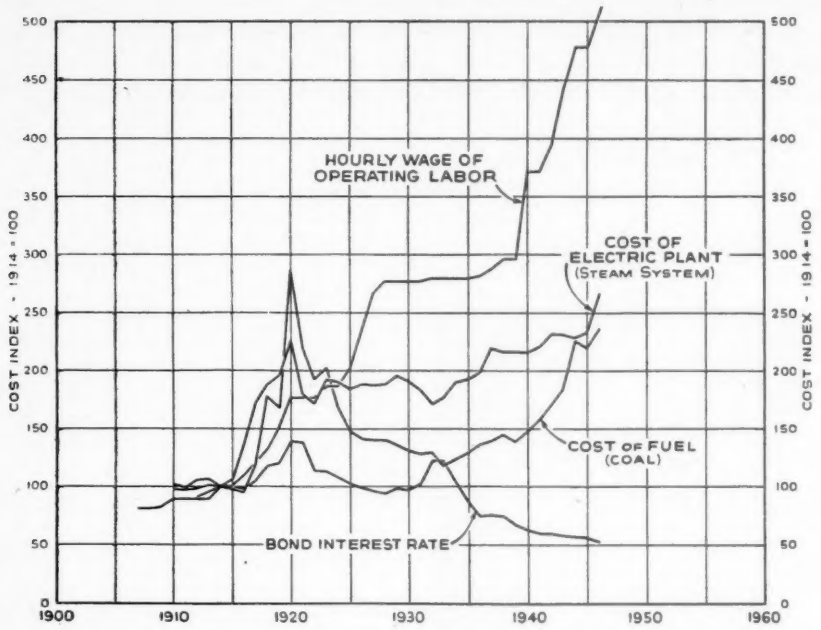


Fig. 1—Index of Cost of Some Important Factors in the Cost of Producing Electric Power.

cation of services and administration. Nevertheless, it is technological progress which has made it possible to double the output of kilowatthours per ton of coal in the last 25 years, to produce great concentrations of power from a few large units instead of a multiplicity of small ones and to interconnect vast systems so that every dollar invested in generating plant extends its potential usefulness over a wider area.

We can not claim credit for the engineers, however, without paying tribute to the management which has had the courage and the foresight to let the engineers have their head. In no other industry have engineers been given greater opportunity to pioneer and to develop their art. Whenever the engineers have determined that an unprecedented design is economically sound, management has been willing to risk its capital on their judgment, and results prove that this confidence has not been misplaced.

Fig. 2 shows graphically the basic reasons why the electric industry has been able to pay more and more for all it buys, yet sells its product for less and less.

Fig. 1 and Fig. 2 combined constitute a lesson in economics that should be impressed upon every wage earner and every politician. These graphs show that our economy can support high wages if the wage earner is sufficiently productive. No industry has a better record for increased productivity than the public utilities,* and Fig. 2 illustrates some of their outstanding achievements. Output per ton of coal burned has increased from 525 kwhr in 1915 to 1550 kwhr in 1946. Kilowatthours per man year of labor have increased from 83,000 in 1902 to more than 1,000,000 in 1943. There has been a decline, which may or may not be ominous, since 1944. The productivity of capital investment, with which we are here concerned has likewise increased. Whereas we were generating less than 3000 kwhr per kilowatt of capacity in the boom years from 1915 to 1920, we generated more than 4600 kwhr per kilowatt in 1944. There was a slight decrease in '45 and '46 but at the present rate of output we will in all probability reach an output of more than 4700 kwhr per kilowatt in 1947. The increase in productivity of capital investment is specially high for steam production plant, for which output per kilowatt of capacity increased from 1875 in the depression year of 1932 to about 4121 in 1946.

The increase in productivity here shown has made it possible to lower rates almost continuously, but how much longer can technological progress stem this tide of rising costs? We may hope that the costs of plant, fuel and labor which comprise the cost of power have ceilings, but we know that the selling price has a floor. It can not go down forever. Perhaps we have already touched bottom. Perhaps the long term trend has been reversed and the day is approaching when public utilities must swallow their pride and demand an increase in rates.

And why not? Wages, we are told, must be adjusted to the "Cost of Living." If Fig. 1 shows what has hap-

* "Output and Productivity in Electric and Gas Utilities 1889-1942." National Bureau of Economic Research, 1946.

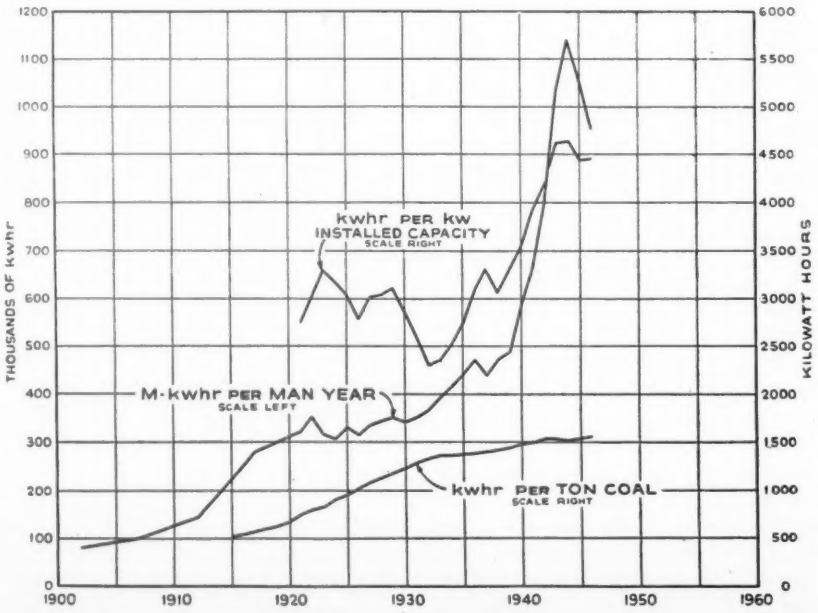


Fig. 2—Productivity of American Electric Power Generation.

pened to the public utility's cost of living, then an increase in the public utility's wages is clearly indicated. Electric power is a valuable commodity, as indispensable as fuel or steel, and in times like these, why should the consumer not expect to pay more? There is the rub. He may be willing to pay more at a time when his own production and selling prices are at their peak, but when his business slumps, and his selling prices drop, then he is going to complain if his power costs do not drop in some proportion.

Referring again to Fig. 1, the coal bought at the top of the market in 1920 was burned and replaced by cheaper coal, but the plant built that year stayed on through the subsequent depression, trying desperately to earn a fair return on its cost. Rates may be adjusted upward or downward to follow the price of fuel without excessive complaint from the consumer, but what we invest in electric plant at the peak of the market is frozen at that level for its useful life. Rates can not be lowered because construction costs have come down without sacrificing reasonable return on the investment. Therefore, as a matter of business prudence as well as professional pride, we should like to hold the line, and prevent any permanent increase in delivered costs of electric power.

If holding the line depends on cost of plant, the future does not look too hopeful. However, our judgment in regard to the future of plant cost may be distorted by the situation in which we find ourselves at the moment. If you can conceive of an elevator in the Empire State Building getting out of control on its upward flight, and can imagine the feelings of the operator as he passes the 81st floor, then you can appreciate the sensations of a construction engineer in June, 1947, trying to estimate the cost of a power plant which is scheduled for completion in February, 1951!

Our man in the elevator knows he is high, and is reasonably sure he is going higher. He is confident that eventually he, or his remains, will reach a lower elevation, but speculating on what is going to happen in the meantime may cause him some perturbation.

If it is a matter of any interest, his executors may determine the path by which he reached the 81st floor, and we can at least do that much with respect to the cost of electric plant.

Like production expense, the cost of plant has many elements, and price

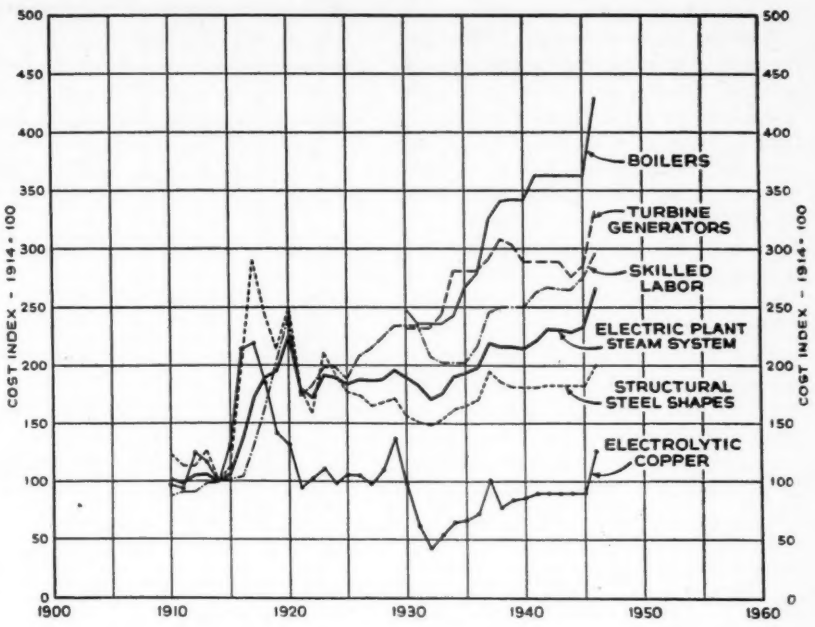


Fig. 3—Index of Electric Plant Cost and Some Factors Affecting It.

trends of all these elements have been carefully recorded over the years, plotted as indices and combined to form an index for total cost of plant.

Fig. 3 shows such an index repeated from Fig. 1. It is a graphic representation of the relative cost of electric plant in a particular region of the United States from 1910 to the present for a system on which all power is steam generated. The sharp rise beginning with the outbreak of World War I in Europe reached a peak of 225 (1914 being 100), three years after the war was ended. This is an ascent of 125 per cent in six years. From that time till now, this index has never dropped below 170. In general, the postwar index reached a plateau about 75 per cent above prewar levels. After maintaining a reasonable stability for about 10 years, it started climbing gradually, acquiring a sort of running start, and now appears to be taking off "into the bright blue yonder." Some other indices turned down in April of this year, heralding the possibility that a postwar peak may be at hand, but price increases were announced in May for turbine generators and other important equipment, and there was a general increase in wages for construction labor. This index for electric plant has not turned down.

For purposes of comparison, we have shown on this chart the indices of some commodities which affect the cost of electric plant. First, we show two important basic materials—copper and steel. The graph discloses how fortunate we are that copper is such an important element in electric plant. Compared with other commodities it has been cheap ever since World War I. In spite of recent price increases, it is still relatively cheap. The indices for steel and skilled labor roughly parallel the combined index for electric plant, but the indices for some items of major equipment are up in the stratosphere. Largely as a result of equipment cost, the index for steam production plant is higher than this average for combined electric plant.

If common labor were shown on this comparison, it would have gone off the chart about 1938, and is now over 600, but common labor is a factor of dwindling importance in construction costs. Shop labor no doubt has soared somewhat in proportion to common labor and accounts in large measure for the soaring indices of equipment costs.

At this point some comment may be in order regarding indices in general, and this index in particular. You are all familiar with the Engineering News Record Indices of Building and Construction Costs. Each of these is the sum of certain quantities of building materials at current prices, plus the sum of a certain number of hours of skilled or unskilled labor at current wages, compared with the sum of the same quanti-

ties and hours at the prices and wages prevailing in the base year, 1913. An index of this type assumes the same ratio of labor hours to material quantities from year to year. It ignores the fact that a mason may lay fewer bricks per hour in 1947 than in 1913, or that an electrician may have pulled more wire in a 40-hour week in 1932 than he does now in a 53-hour week for which he gets 66 hours' pay. In other words, it ignores the "efficiency of labor," which is fast approaching the efficiency of a certain famous pump; the test engineer reported "The efficiency of this pump is so low that it may be neglected." Indices of this type make no allowance for relative efficiency of construction plant or job management, of competitive conditions, or of the effects of protracted periods of construction such as we have today, when it takes three years to do a job that before World War II could be completed in less than one. The index, assuming a uniform ratio of skilled to unskilled labor, overlooks the fact that unskilled labor is gradually being crowded out of the construction industry as the skilled crafts insist on taking over more and more of the work that requires no skill. Such indices take no account of "feather bedding" and other cost burdens imposed by the construction crafts, so that in many respects this type of index presents a distorted picture. It fails to reflect the real ratio of costs today with those preceding World War I.

Our own index for electric plant has the same shortcomings, in that it does not show completely the heights to which construction costs have risen.

In the development of this index, 14 electric light and power company properties located in 12 states were analyzed to obtain a composite weighting of the various accounts making up the properties. Accordingly, it may be assumed that an average or typical 1914 electric property was the basis for the development with no attempt to reflect improvements in the art which might have the effect of materially changing the component weightings.

The underlying cost data, consisting of 38 components making up the composite total property, have been obtained from a number of reliable sources and all are fairly representative of average costs which would be incurred in this particular area in a given year.

It should be understood that the index has not been prepared either for general application or for application to any particular property, without suitable adjustments. As it stands, it is intended to serve only as a general guide and not as a basis upon which to arrive at a final determination in any specific case. Moreover, modifications of the index have been made from time to time, even for previous years, whenever more reliable information, previously unavailable, has come into our possession.

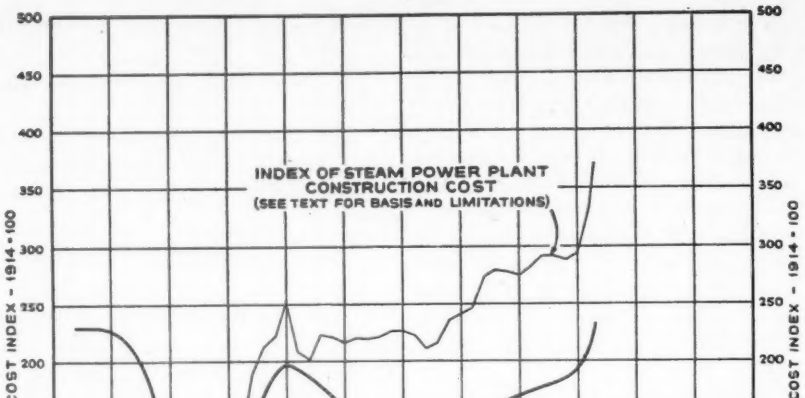


Fig. 4—Index of Steam Power Plant Construction Cost, and Adjusted Index, Reflecting Technological Advances.

In situations where it is required to reach a reliable determination for a specific property, adjustments must be made to bring the index into harmony with material prices and labor rates in the territory involved and with the composite characteristics of the particular property in question. It should also be pointed out that the index does not purport to reflect the abnormalities in recent wartime costs because they do not give effect to the influence of lessened productivity of labor or to the increase in certain material costs on which fabrication has permitted greater price increases than were allowed for the basic material prices used in developing the index numbers.

This index, then, has two defects, if taken as a measure of the situation in which we now find ourselves. It does not reflect the declining efficiency of labor, and it assumes the reproduction of obsolete plant, which under no circumstances would be reproduced today. An effort has been made, therefore, to develop an index which would reflect both labor efficiency and technological advances. This was not feasible for whole systems, but it appeared that a reasonably sound index for steam power plants might be prepared from the cost records in our own office in view of the fact that we have been constructing steam power stations for nearly 60 years, and we have complete cost data for at least 45 years covering plants of all sizes and types, erected in all parts of the country. During that time we have consistently, for any 5 or 10-year period, constructed about 10 per cent of the public utility steam generating plants in the United States. Our cost records are sufficiently complete, and sufficiently uniform, to serve as a basis of comparison for such construction since 1902.

Steam production plant normally constitutes more than 40 per cent of total electric plant cost in a system where all power is steam generated. Our index, corresponding to that for combined electric plant shown in Fig. 3 roughly parallels the latter but reaches a considerably higher level as shown in Fig. 4.

The Turner Index of Building Cost, which is adjusted to allow for efficiency of labor and other realistic items now stands about 25 per cent higher than the Engineering News Record Index of Building Costs. Labor is a less impor-

tant factor in power plant than in general building construction, but it is certain that a similar correction of this index would carry it above 400, today. This does not mean that it would cost four times as much to build a power plant of given capacity now as it would have cost to build a plant of the same capacity before World War I. The cost of building would be more per cubic foot, but larger units and higher rates of heat transfer would reduce the building volume required. Steam generating equipment would cost more per square foot of heating surface, but the modern boiler would generate more steam per square foot, while the modern turbine would require less steam to produce its rated capacity. Higher speeds helped to hold down the rising cost of prime movers. Our adjusted index, shown by the heavier line on Fig. 4, purports to reflect such advances in the art of generating power by steam. The difference between this line and the unadjusted index is a measure of net reduction in steam power plant cost effected by advances in the art, in spite of the adverse effects of declining efficiency of labor.

This adjusted index is the weighted average cost, per unit of capacity, of steam power plants which Stone & Webster had under construction during each of the last 45 years, and for which comparable cost records are available, converted to an index with costs in the year 1914 taken as 100.

At the beginning of the century when we were installing 500-kw engine generators with 200-hp hand-fired boilers, the unit cost of power stations was high —even a little higher than it is today. With the advent of steam turbines, overfired and then underfired stokers, costs came down, reaching their all-time low at about the time we have chosen as our base, 1914.

Costs rose again with prices and wages during and after World War I, but not as fast as the unadjusted index. Following that war, the unadjusted index remains at a high elevation, but the adjusted index falls as larger and larger units, and mounting rates of heat transfer effected substantial savings in the relative cost of plant. After 1930, the trend begins to parallel the unadjusted index. The average size of units installed is still increasing although the maximum for any individual installation was reached before that date. The subsequent savings in structural cost were of a minor nature. More equipment was installed out-of-doors. Cheaper building materials were used in many instances, providing functional structures rather than architectural monuments. Hydrogen cooling enabled us to get the desired generating capacity with less iron and copper. These savings barely offset increased expenditures for higher pressures and temperatures, and the effects of decreased productivity of constructing labor, so that the net gain in cost of steam production plant has been very little since 1930.

Within the past six months, the adjusted index exceeded the peak it had established following World War I, and while it has not yet reached the levels of 1902 when we were installing 500-kw, engine-driven generators, it appears to be on its way to an all-time high. In any event, so far as plant cost is concerned, all the technological advances of the last 25 years have been wiped out by mounting wages and prices. If there were any indication that we are at or near a second postwar peak, there would be no cause for despair. A kilowatt of steam capacity installed in 1947 costs more than twice as much as a similar unit installed in 1914, but it is easily worth that premium. In the first place, the owner may expect to get more than 50 per cent more use out of it, due to the higher load factors now prevailing. The 1947 plant will produce 60 per cent more power for every ton of coal burned and twice as much power per manhour of operating labor. Perhaps we can afford to pay what capacity costs today, but can we afford to pay what it will cost tomorrow?

Looking into the future, we seem to have reached the period of diminishing returns. We do not presently aspire to larger units, but improved methods of combustion may further reduce cost of steam generating equipment and housing. Neither do we aspire to higher generator speeds, except for the largest units. Improvements in manufacturing methods and genuine standardization may help to reduce equipment costs. New and cheaper construction materials may be developed. One virgin field for technological development is the construction industry, itself. The few improvements that have been made in the art of building have been largely vetoed by union regulations. We may even hope for improvement in the productivity of construction labor. Some day, some how, our entire nation must learn that our boasted standard of living springs neither from high prices nor high wages, but from high production. When this lesson is learned, construction trades will allow engineers to devise methods and machinery which will multiply the individual worker's output as it has been multiplied in the power plant and in the factory. Like his brother in the production field, he will have more employment. He will earn more with less effort. By producing more, he will help to turn this curve downward. This we may hope for some day, but not tomorrow.

It would be helpful if we could predict, from a graph like this, where we are going and when we will get there, but all it tells is where we are and how we got here. Remember that power plants now being authorized will reach their peak of construction activity at the end of 1949. Looking at a chart like this, what would one estimate the plant will cost? If history repeats itself we may have been over another postwar peak and costs will be coming down. But down from where? We may assume that we shall go over a hump and reach a protracted "plateau" as in 1925 to 1935, but will we, and if so, will the plateau be any lower than where we now are? While the title assigned to this paper requires discussion of not only cost "trends," but their "implications," the answers to questions like these are beyond the scope of a mere implication.

Back in 1914, to which we refer as our base year, we still accepted Adam Smith and John Stuart Mill as authorities on prices. They would have told us that, as a long time trend "in a state of freedom," our eventual prices would bear some relation to gold value of our money,* that is, we could expect our future "plateau" to be at least 60 per cent higher than its prewar elevation, or about where we were at the end of 1946. Of course, we are not economically "in a state of freedom," and Messrs. Smith and Mill have been discredited by a series of 5 to 4 decisions, so we do not have even the gold value of the dollar as a standard for prognostication. We might hazard a guess, however, that there may be some residuum of validity in the old "Principles of Political Economy" and that our future efforts to re-

* "Let it therefore be remembered—that a general rise or a general fall of values is a contradiction; and that a general fall of prices is merely tantamount to an alteration in the value of money —". John Stuart Mill, "Principles of Political Economy", Book III, Ch 1.

"The value of money then, conforms permanently, and in a state of freedom almost immediately to the value of the metal of which it is made." Ibid, Book III, Ch 9.

duce costs by engineering improvement will start from a postwar level of at least 200 compared with the prewar 130. If this is true, we may regard any improvement in design which reduces the capital cost of plant as something of permanent value and not a temporary expedient to meet present conditions.

It would be comforting if we could postpone our investment in electric plant until we see what the future brings forth. The miller and shoemaker may be able to wait and see what is going to happen, but not the public utility. Already we are running a race with time that we are by no means sure of winning. We have not caught up with where we were going back in 1930. We have not caught up, we are not even progressing as fast as we were at that time and the years immediately preceding it.

Fig. 5 shows the growth of generating capacity of electric systems in the United States since the beginning of the century. The graph shows a very smooth progress from 1,200,000 kw in 1902 to 34,000,000 kw in 1930. The continuity was broken by the great depression, but again neglecting some irregularity due to wartime construction restrictions, we seem to be making a smooth progression, passing the 50,000,000 kw mark in 1944 and we have plants under construction that will bring us to 60,000,000 kw in 1949, if our construction schedules are maintained. The point of the graph is this: In spite of the fact that we have more generating equipment on order than at any previous time in the history of the industry, we are not building as fast, comparatively, as we were in the 1920's. The slope of the first curve on this graph is greater than the second. Even if we realize our construction schedules, the capacity available in 1949 will not give us what we regarded before the war as essential reserve, unless there is a material recession in the demand for power. While the same factors that are skyrocketing construction costs may induce such a recession, it is unlikely to be of sufficient magnitude to allow power plant construction to catch up with the demand for several years. Whether we like it or not, high cost or higher cost, the public utilities must keep on building.

The long term outlook is equally demanding. The high labor costs which concern us in construction work and power generation are universal throughout industry. Labor saving devices are in demand, and such devices require power. Higher earnings of the wage earner result in more completely electrified homes. Some day we shall have the "adequate housing" we are dreaming about, with all that means in domestic consumption of power. On top of all this, electrically, we are not the world leaders we are generally supposed to be. The per capita consumption of power is 115 per cent higher in Canada than in the United States, and before World War II there were at least four European countries who out-ranked us in this respect, including the tiny Duchy of Luxembourg. There is every evidence that we must keep on building, now and for a long time to come.

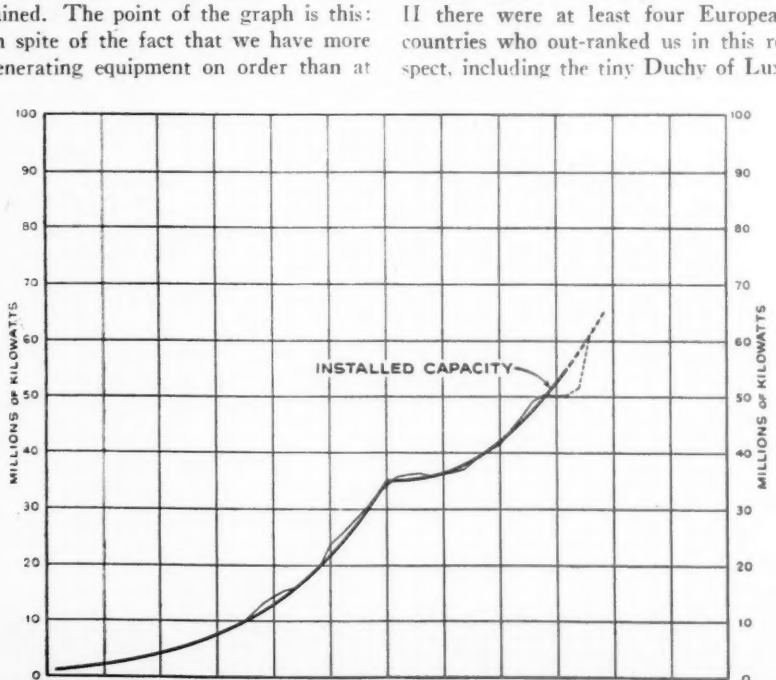


Fig. 5—Long Term Trend of Installed Capacity for Generation of Electric Power in the United States.

On the other hand, we should not continue construction blindly in complete disregard of present costs. If we can not postpone the building of essential capacity, we may at least be able to postpone some desirable but nevertheless deferrable items, even at some temporary increase in production expense. Auxiliary buildings, warehouses, shop facilities, permanent office space and other adjuncts might well be postponed until there is less demand for construction materials and labor for other purposes. Even for essential plant, many features should be carefully scrutinized to avoid any unnecessary costs. If less expensive boilers can be installed at more expense for auxiliary power, or substantial amounts can be saved in the construction of condensing water supply systems at the expense of higher pumping costs, let us weigh these factors with the utmost care. We should consider some practical matters in addition to the theoretical minimum return on optional investment. In 1932 we saw the load factor on our steam power plants drop to less than 25 per cent, and it is conceivable that this may happen again. Let us spend what we must spend for capacity and reliability, but scrutinize very carefully all optional expenditures for marginal savings in production expense.

Substantial savings can be made at some sacrifice of convenience and flexibility by installing a single boiler for each turbine generator and by omitting cross connections between boilers and turbines, that is, by adopting a complete unit system. We should consider whether the inconvenience of more out-of-door construction is not justified at present cost levels; after all, most of our so-called "out-of-door" plants are fairly well housed. Particularly, we should not be thrown into a panic by present fuel prices, and start a mad race for thermal efficiency at the expense of a reasonable balance between capital investment and long term production costs. Fuel has been high before, as shown in Fig. 1, but it did not stay high. Even if present fuel prices should prove permanent, let us not forget that fuel belongs in the energy component of our rate schedules, while construction costs are part of the demand charge. It is the demand charge which may cause us most concern in the years to come.

What Makes American Enterprise Keep Ticking?

By Virgil Jordan
President, National Industrial Conference Board

An address before the Fifteenth Annual Convention of the Edison Electric Institute, Atlantic City, N. J., June 4, 1947

THERE IS A suggestion of curiosity or surprise in the title you assigned for these comments and, whether intended or not, it is surely justified. Two years after Communist Russia won the war against her Nazi ally, with some slight assistance from America, this competitive capitalist enterprise economy of ours is still ticking energetically enough to keep the various collectivisms that cover most of the rest of the world from collapsing completely, and to provide the doles on which their impoverished peoples are living while they await the collapse of private capitalism which their politicians prophesy for their entertainment and encouragement. It is a strange and not altogether happy spectacle, this picture of America in the midst of the modern collectivist One-World of beggar and robber nations who depend upon the productive power of her individual competitive enterprise though neither believes in the other or has much love for it. Considering what has been happening here during the past fifteen years, our part of the picture is perhaps the more puzzling, and as an old hand at the role of Jeremiah, I find myself wondering, too, what makes this enterprise economy keep ticking so strongly. The resounding ticks of the statistics of current production, trade, profits, employment and income are reassuring, but are we sure the clock is telling the right time, and if we open the case and have a look at the works, what will we see?

Later Than We Think

Whether we are concerned with the political time or the economic time, I suspect it is later than any of us think when we look at the American clock, and if we examine its works realistically it will appear that some of the finest jewels of the movement have become badly worn, the mainspring considerably weakened, and the balance-wheel a bit wobbly, because of the abuse or indifference with which it has been treated during the past decade or two. I have not the least doubt that we can put it

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in good shape if we want to and are willing to pay the price; but it will not be a simple or easy job, and we had better start soon.

I suppose that the American economy today is practically at the highest peak of production on record in relation to the amount of labor time and effort, capital, tools and other resources being put into it. In saying this I do not except the war period, because most of the measures of output and input during that time were so distorted that they cannot be compared with the present or the past and their significance is doubtful. The high levels of production, consumption, income and business earnings have been a great handicap to the spokesmen, interpreters and prophets of free enterprise who have been viewing with alarm the governmental and labor policies of the past decade and are still active or vocal in that profession. Most of the things they have been saying about the effects of these policies have been heavily discounted or even cancelled out by the apparent continuous increase of employment, wages, business profits and general prosperity, and the fact that the great mass of the people seem to be better off. The postwar depression and the earlier catastrophes that were forecast as the inescapable penalties of these policies have so far failed to appear, and this may explain the nearly complete indifference most Americans, including many in the business community, have shown toward efforts to arouse their fear or resentment about the perils to economic or political freedom these policies have implied.

Nevertheless, the current picture of the position of the American economy is in many important respects seriously misleading and even largely illusory, and the dangers that face it are still real and perhaps greater than they have been in the past. Subtle and far-reaching changes have occurred in it and in the people who operate it or compose it, and though they may be slow and unseen their effects will ultimately appear unless they can be retarded or removed. It has drifted much closer to the condition of the collectivist economies in the rest of the world than most of us imagine, and it is very difficult to define or describe accurately or realistically the character of the American economy as it actually exists today.

Collectivism Today

It has been, and most of us commonly assume that it still is, an economic system based upon free, competitive, private capitalist enterprise; but what, in fact, is the real situation as regards all of these essential elements of the system? Obviously, large and widening areas of it, like the public utilities, are conducted by state regulated or publicly owned monopolies; and many other industries are taking on some of the characteristics of public utilities or tend more and more to be treated like them, especially where the determination of prices and some elements of cost are concerned. Less obviously, but as truly, in nearly all areas and in many ways the freedom and degree of market competition, the sources and supply of capital, and the strength and scope of enterprise have

been steadily and substantially shaped and impaired by public or private attitudes and action. By comparison with most of the collectivisms of the current world, the American economy seems to us still to offer a large measure of freedom, a pretty active competition, a generally predominant degree of private capitalism and individual ownership, and a very vigorous spirit and practice of enterprise. But it is not what it was in any of these respects, and it is steadily and rapidly becoming less so.

When you consider the nature and cause of these changes it seems clear that they have been part, and perhaps a consequence, of a world-wide drift toward various kinds of compulsory collectivism in thought and action that has been going on for a long period. Probably the most crucial element in the character of the American economy is what we call freedom, by which we mean not merely general freedom from government regulation and control, but particularly freedom of the market. Whether or not there are cycles in freedom, as there are in prosperity, it has clearly come upon hard times. Everywhere in the world economic freedom, and with it many of its companion freedoms, has been on the wane for a generation at least, and the market for it among the peoples of the world and among all groups and classes of them is greatly depressed today. Everybody is bullish on the prospects for prosperity and all kinds of security; pie-in-the-sky preferred has soared to new peaks even in frost-bitten and hungry Britain, and we divert ourselves by making chart projections of the national income during the decade from 1950 to 1960; but freedom common is in little demand, and the traditional price of liberty has fallen very low in the political marketplaces practically everywhere.

Devaluation of Freedom

The extent to which both economic and political freedoms have been devalued in the generation since the first world war began has paralleled the inflation of currencies in most countries. We hardly remember that all the nations assembled at Versailles to make the peace treaties ending that war were republics or democracies under representative parliamentary governments, with economic systems functioning in fairly free markets, except for traditional tariffs, some private cartels and a few unimportant public monopolies. Today there is in fact not a single fully free economy left in the world, and very few free white markets for anything. The price and supply—and for the most part the consumption, too—of nearly every important commodity and service is determined practically everywhere by public or private monopoly or by government regulation or control, or both. Nearly every country outside of North America is governed by some form of socialist dictatorship, and in most other parts of the world political and civil liberties have wholly disappeared or have been drastically impaired.

Loss of Economic Freedom

The most significant thing about this devaluation of the idea of freedom—especially in the economic field—as a fundamental element of the American economy, is not that it has happened here as it has almost everywhere else, but that most Americans, even in business, are wholly unaware of it or indifferent to it, or take it as inevitable, or necessary, or natural. It is not merely that they attach so much more importance to the idea of security than they used to, but that they are so little interested in freedom at all that they are unconscious of the extent to which it has been curtailed, or of the probable consequences. In America experience has so strongly nourished the illusion of automatic endless abundance and progress that we have come to assume these things without question as something we can never lose, and probably would continue to take them for granted even if we were actually living like Australian bushmen or Bulgarian citizens. Economic freedom seemed to have little or no connection with them, or was taken as a matter of course like free air; as a part of the American climate. Our long periods of prosperity and phenomenal progress made the danger of losing it seem remote, or unimportant. The connection between economic freedom and political liberty was quite obscure, and the problems of preserving it were in fact so complex and hard to understand that we were bored to death when anybody undertook to explain them or told us, for instance, to read the Federalist papers.

As I have observed it during the past decade this drift away from economic freedom, and the growing indifference toward it, have seemed to proceed under a sort of emotional or intellectual anesthesia to which almost all groups among the American people, notably including business men, have been subject, and which has steadily reduced their sensitivity and reaction to expanding control of the market and the allocation and use of economic resources under public or private monopoly of governmental regulation. It may be an ominous symptom that we have talked more about free enterprise and the classified freedoms than ever before, compiled more monumental tomes to expound its merits and accomplishments, erected more statistical tombstones in its memory, and laid more literary and rhetorical wreaths on its grave. The very language of economic freedom has become so perverted and confused that almost every proposal aimed to expand governmental power, and every piece of legislation designed to widen State control of the domestic and international market is now framed in terms of the sacred purpose of preserving or promoting free enterprise, and the devil himself quotes its scriptures with pious sentiment and apparent sincerity while millions cheer every additional curtailment of their economic freedom which is demanded by anybody in its name. So it is that the earnest, enthusiastic or anxious alike among us Americans today are traveling swiftly and for the most part cheerfully along a road from which most of the familiar landmarks have disappeared and the sign-posts have been removed or arranged to point in both directions at once. We measure our speed and progress by abstract, collective statistical milestones like national income estimates, but hardly anybody knows or cares which way we are moving on the road—backward toward some form of the old collective servitude, or forward toward a new kind of freedom which will come to the same thing. The new world, whatever it may turn out to be, is being born in a strange sort of twilight sleep, or hypnotic trance, in which almost nobody seems to be conscious of the extent or the consequences of curtailment of either economic freedom or their civil liberties.

Growth of Monopoly Power

This is a fact of formidable significance for the future, for it seems clear to me that you cannot keep the kind of economy we have had in America ticking very loud or long, or ultimately at all, if the people who compose or operate it don't care about freedom, are losing their sensitivity to its restriction, or set a dwindling valuation upon it by comparison with other things like security, stability, income and the like. This

applies particularly to that aspect of freedom which concerns freedom of the market, and the determination of prices of goods, services and capital, and the distribution of labor, capital and materials by free competition; and it applies especially today to the attitudes of business, labor and consumers toward these matters.

Government Controls

You may have some doubt, as I have, whether or not the fundamental elements and conditions of a free economy have really disappeared or have been permanently abandoned in this country, but the evidence of a tendency to embrace or accept some form of compulsory collectivism has been abundant and clear during the past decade. The growth of governmental and private monopoly power over the economic organization has been rapid, comprehensive and deep-rooted, and the atmosphere of government control is now so pervasive and familiar that most Americans can no longer imagine its removal, and have come to doubt that it should, or could, ever be done. We have been living in the iron lung of governmental control so long that there are few who could look forward to breathing the air of economic freedom with much comfort or confidence.

This has been evident enough in the history of postwar reconversion policies and in the picture of paralysis or impotence which the majority party in Congress has presented in dealing with taxes, public spending, labor problems and foreign relations. Governments never demobilize themselves, and since the New Deal Decade and the war in which it culminated it has been impossible for any party seriously to attempt or even to propose to demobilize overgrown government, or to shrink its powers or functions in any substantial way. It has not been done in America any more than anywhere else in the world, and the prospects for it are doubtful. A vastly more elaborate structure of fundamental government controls than this country ever knew before still continues to operate. Prices, production, consumption, exports and imports of many important commodities are still determined by government, and no material change has been made in its comprehensive control of savings, investment, capital markets and interest rates. The majority party in Congress is unwilling or unable to bring itself to make any substantial reduction in the budget or the tax burden by which the governmental mammoth is fed, or materially to curtail the privileges and powers of the private labor monopolies that determine wages and control production and employment in most occupations.

What has happened to the fundamental freedom of the market for goods, services and capital in this country during the past decade is something broader or deeper than mere economic or political change. It is rather a reflection of shifting mass attitudes and ideas regarding economic and political procedures about life, work and government. In every aspect of thought and action one can observe the steady growth of collectivism and decline of individualism. More and more people accept, depend upon or demand group action and compulsion and resent, resist or suppress individual voluntary competitive effort. The burden of individual cost, risk and responsibility is increasingly feared, avoided or shifted to groups. This process is evident enough not only in government fiscal and labor and agricultural policy, and in the expansion of social insurance programs, but also in international relations and in the ideas and conduct of business.

Collectivized Costs

The costs of goods and services are being increasingly collectivized and shifted from the immediate consumer and user to some more remote group, such as the general taxpayer, and the responsibility and risk to provide them removed from the individual or enterprise to some public official, agency or authority. Subway rides in New York City, school children's lunches, college educations, farmers' electric lights, doctors' and dentists' bills, houses for veterans or low income groups, are common current examples of innumerable things that are being paid for in part by somebody else beside the user, and removed from the free market where their price, supply and consumption are determined by the free competition of supply and demand. The gray twilight area between the free voluntary competitive economy and the compulsory collective economy is widening in America with the development of types of semi-public corporations and authorities who avail themselves of tax-exemption and public monopoly privilege to go into many forms of production, service and construction activity. Farm prices and incomes are being paid partly out of the public treasury through subsidies and loans; all important economic factors of railroad operation and many elements of water, highway and air transportation are determined by public authority or labor monopoly, and the fundamentals of the financial system and the capital market are controlled by government.

Mixed Economy

Whether or not these conditions involve direct government ownership or operation, they progressively impair and distort the functioning of what remains of the free market, and steadily narrow the area of economic freedom until no one can be sure how much of it actually remains. From some points of view and in certain respects it can be said without much exaggeration that free enterprise in America has become a marginal or fringe activity during the past fifteen years. It is practically impossible to say whether or not agriculture, coal mining, transportation, banking and the production of power and light in the United States are in fact conducted by private enterprise or operate in a free economy, because all parts of the economic organization have been so pervasively penetrated by government controls and private monopoly influences upon wages, prices, production, consumption and investment. Certainly ours is indeed a thorough mixed economy today and, what is more significant, it is generally accepted as such even by the business community. The debates about its merits and permanence, of which we heard so much a few years ago, have largely faded out. Almost no one now questions the stability or desirability of the combination of government control and private enterprise, and the idea that it is possible and necessary to develop a social system that provides both economic freedom and security simultaneously is universal and orthodox doctrine in the United States today.

Among the symptoms of the growth of the idea of compulsory collectivism in current American economic life, within the form of a free economy, perhaps the most important and timely is the extensive and increasing participation of this country in international governmental arrangements for control of trade, investments and exchange, which require and commit us to far-reaching internal regulation of prices, employment, production and consumption by the Federal government.

Beginning with the agricultural pooling and allocation arrangements of the

war period, and running down through the Bretton Woods agreements to the currently discussed Charter of the International Trade Organization, all this structure of collective action is being tied toegther in the United Nations Organization, with the hope of promoting international peace and security, stability and full employment.

Threat of World Trade

Though the ostensible aim is to reduce restrictions on world trade, the necessary effect is to put the control of internal as well as international economic activity more completely in the hands of government and to eliminate what remains of a free competitive market at home as well as abroad. Almost all of the governments with which these arrangements are being made are socialist or communist dictatorships and conduct all domestic or foreign business through public or private monopolies. The arrangements must inevitably compel us to do the same in the course of time if they are to be effective at all. Since it might not have been possible to bring this about so easily or so soon without such arrangements they are in effect a device to promote a kind of back-door collectivism in America, and this may be their primary or ultimate purpose on the part of foreign governments, if not of our own. So far as they can or will be put into effect they must put an end to every vestige of a free market in international trade, and they cannot be made effective or be enforced without complete government regulation of the internal economy of every country concerned, including this one; but because they are bound up with ideas of international peace, relief and reconstruction, or with the purpose of providing an antidote to Communism abroad, few Americans are conscious of their implications for the preservation of a free economy at home.

On the domestic side the most striking manifestation of the current collectivist drift of thought is the development and wide acceptance during the past decade of the doctrine of State-sanctioned, supported and enforced labor union monopoly power in fixing wages, production costs and prices, and controlling employment, under the name of "collective bargaining" and "union security." Whatever reasons there may be for modifying free competition in the labor market, it is self-evident that without it you cannot have a free competitive economy any more than you can have private capitalism without a free capital market. Industry or nationwide collective bargaining, the closed shop in all its forms, and other labor union monopoly practices, are plainly incompatible with a free competitive enterprise system, but all these are generally accepted as necessary, inevitable or proper by most of the American people and a large part of American business today. Under them you may have some form of collectivism; you may have plenty of political competition for public or union office; you may have more peace, security and stability, though that is doubtful; but if you have state-supported, sanctioned or compelled monopoly by labor unions or any other group in the community you may as well stop talking about a free competitive enterprise system, because it cannot exist. You do not change this by cutting the employer or the consumer into the game in any manner; you only make it more certain that sooner or later the State must step into it and treat the workers or the business or the product as a public utility by regulating the monopoly, fixing the price, the wage, the profits and the conditions of employment.

The Split Business Mind

The desire for security and the drift toward collectivism evident in these policies is not confined to labor unions or leaders. The attitudes of business men toward the free market and free competition are very confused and uncertain, and it is doubtful how far American business today believes very passionately or with deep conviction in these elements of free enterprise. Skepticism on this point does not rest on the familiar and all too human yearning among business men for conditions or private arrangements which relieve the strain of too strenuous competition in a free market. The umbrella or security complex is common to all groups, but all private monopolistic arrangements, including those of labor that are not in some way supported or enforced by government, are nearly always self-corrective in time, and the disposition of private enterprise in this country to seek, accept, approve or depend upon expanding government support or administration of the market has been evident and increasing. The American business mind is undoubtedly deeply divided, to the point of displaying a sort of split personality on all key questions of public policy that affect the free market and competition, such as price controls, subsidies, priorities, allocations, rationing, tariffs, foreign loans, government landing, buying and selling and labor policies concerning the scope of collective bargaining, the closed shop, et cetera. Tolerance of government intervention in markets for labor, materials and capital, as well as in domestic and foreign markets for their products, has risen rapidly among business men in the past decade of New Dealism and war.

Manipulated Economies

The drift away from faith in the free voluntary competitive market economy, and in the direction of more or less compulsory collective action which is evident in these developments in international and domestic labor and business attitudes, is in large part an expression of ideas that have been the official economic doctrine of our government for more than a decade and have been almost universally, if unconsciously, absorbed by the business community and the general public. In the form in which we adopted them they were imported from England during the depression, with the late Lord Keynes as their chief salesman and promoter, though they were originally invented by Karl Marx.

The essence of this doctrine is that under modern conditions, in order to assure domestic and international economic stability, peace and progress, it is necessary for governments individually and collectively to conduct a continuous compulsory redistribution of income, wealth and surplus production to consumers at home and abroad by manipulation of the community's savings, investment and consumption through appropriate fiscal policies of taxation, public spending and borrowing, and government management of the financial system and the capital market. This fundamental doctrine has been given various vague and innocent names such as "national planning", "full employment", "managed economy", "compensatory fiscal policy" and the like, but its essential idea is that economic stability and the expansion can be secured by government programs to underwrite and manage the market for goods and services at home and abroad by control of consumer purchasing power.

These programs are commonly of-

fered as an indispensable way of preventing or defending the economy against Socialism or Communism, but the basic purpose and conception of this doctrine is essentially collectivist because it treats the activities, the resources, the income, savings and investments of the individuals of the community as a national pool of purchasing power, production and consumption and contemplates redistributing these resources in accordance with a predetermined purpose and plan. It is usually argued that only in this way is it possible to avoid complete public ownership of production and resources and detailed State control of the conduct of individuals. The element of explicit compulsion in this program is perhaps painless or invisible, but it is comprehensive, pervasive and persuasive. It inevitably alters and ultimately destroys the free market and free voluntary competition. It profoundly affects the private capital market for voluntary saving and investment, and likewise the underlying incentives and the scope of enterprise. Experience in this and other countries has shown that this form of collectivism by remote control cannot be applied in the end without increasing measure of direct administration of the production, consumption and savings of the community through rationing, allocations, priorities and price and wage fixing.

Labor Collectivism

In terms of the ideas and programs which have developed around this official collectivist doctrine we have in this country today a fairly well expanded labor collectivism, a professional or technical collectivism and, what is most striking and significant for the future of a free enterprise economy in America, a well advanced business collectivism also. However divergent the views of business men may be on particular measures of government regulation and control, they almost universally accept the idea that it is necessary and possible for government today to manage the general fiscal functions so as to underwrite the domestic or international market by maintaining consumer purchasing power and employment. American business generally has adopted the economic doctrine of Lord Keynes and his domestic expounders. It not only sees in their application no inconsistency with a free enterprise economy but seems convinced that they are indispensable for the preservation of such an economy in America. Indeed, we find business spokesmen as well as other groups currently making constant use of the familiar device of communist conspiracy and propaganda, which is to warn the public that unless we adopt certain measures of government control and fiscal policies that are fundamentally means of establishing a collectivist or communist or socialist system the country will go Communist, which is an end that everybody wishes to avoid.

It Does Work

A typical expression of this state of mind is the familiar formula—"we believe in free enterprise; but it must be made to work," the implication being that it has not worked or does not work, and the ways which are thought necessary to make it work being in one form or another measures that establish a compulsory collectivist economy. The concept of consumer purchasing power as the open-sesame to prosperity and stability, and of government as the fairy godmother of full employment and sustained market demand, able by the use of her magic wand of compensatory fiscal policies to produce a permanent one-way boom, all permeate the important business magazines and trade journals today, and important organizations of business men are devoted to the advancement of them. A stream of literature emanates from these sources spreading throughout the business community the belief that only central government control of this kind will work as a way of preserving and improving free enterprise.

One may wonder how business men, or anybody else, know whether it will work, for it has not yet worked anywhere in the world, and it would certainly be hard to name or imagine any other system that has produced or could produce such amazing waste and confusion, poverty and insecurity, stagnation and retrogression, as is now being exhibited day by day in a world of nations whose economies are completely planned under central government control or dictation. One wonders even more why the spokesmen and practitioners of the kind of economy that has accomplished what has been done in America should be convinced that it did not work or does not work here any more. There is in this state of mind, which is so common though often unconscious in American business today, something fanatical in its combination of blind faith in government power and fatalistic fear or despair of freedom. It reflects either a profound ignorance of past and present history, experience or principle, or the considered or cynical conclusion of speculative expediency, which is that socialism is coming in America as it has come everywhere else, and the safest or wisest or even the best thing to do is to prepare to ride it.

Whatever the explanation of the spread and acceptance of these ideas, the plain fact is that their application is making the preservation of a free enterprise economy in America more and more impossible and is promoting and speeding its ultimate collapse. They are incompatible with any of the elements in the mechanism of the American economy that have kept it ticking in the past. You cannot maintain a free market or a voluntary competitive economy when the flow of consumer purchasing power and the volume of savings, investment and consumption are being controlled by central government under a national plan. Such controls inevitably tend, and are intended, to supersede the automatic play of supply and demand and free competition in determining prices, wages, employment and investment. They establish a state-managed compulsory collective economy in which the work, income, consumption and savings of every citizen are treated as part of an immense pool of production and purchasing power to be manipulated by government according to a predetermined plan.

Capitalism Without Capital

But the American enterprise economy is not merely a free voluntary competitive economy. It is also a private capitalistic enterprise economy, and every part of that description is indispensable. It rests upon private voluntary saving, investment and enterprise, and the crucial fact is that these doctrines and methods of control are directed to the core of that kind of economy. They are designed to destroy it and are rapidly accomplishing that purpose by superimposing upon it a form of compulsory collective capitalism, and by removing the incentives to private voluntary saving, investment and enterprise.

It might seem to be obvious that you cannot have any kind of capitalism without capital, but that is essentially what we are attempting today under the ideas and policies I have been describing. A fundamental part of them is the belief that the main reason why the American enterprise economy

doesn't work any more is that it tends to accumulate too much capital, that over-saving and under-consumption are the chronic disease of private competitive capitalism, and the only cure for it is fiscal policies and financial controls which redistribute the income, promote consumption and enable the government to manage the savings and investment of the community.

Public Investment

The chief ways in which this is done are familiar to most Americans and taken for granted by them. First, of course, vast and continuously increasing programs of public spending and lending at home and abroad are used, in peace as well as in war, to distribute purchasing power, dissipate capital savings and force consumption, and this process of publicly underwriting the consumer market by socialization of income and compulsory spending is universally approved by business, labor and consumers. Secondly, heavy steeply progressive and flexible income, estate and business taxes confiscate and pool for public use a large and increasing part of the national income, and make the accumulation of private capital savings practically impossible. This process of socialization of income is being extended to business income, too, and in these ways more than a quarter of the national income, product, and employment and consumption is in fact already socialized or communized in America. Third, this collectivizing of income and consumption is supplemented and supported by unlimited use of government credit mainly through borrowing from banking institutions which are largely under government control. The sheer magnitude of government credit operation, combined with its control of the banking system and the private security markets, give it a practically unlimited monopoly position in the capital and money markets and enable it to determine the supply, demand, price and movement of funds for private as well as public investment and use.

Perhaps the most important single thing that has been done by way of applying the basic collectivist idea of controlling the economy through compensatory fiscal policy is the establishment of a national system of compulsory saving under the name of "social security." The essential consequence of this system is to provide a vast pool of funds for public spending and investment into which the individual private savings of the community are conscripted and siphoned off continuously for government use. Under this mechanism, investment in government securities has become compulsory and automatic for most of the population. Whatever other consequences it may have, it unquestionably affects the flow of private savings and capital into private investment and imposes a formidable handicap upon the survival and expansion of a private capitalist economy.

The system of compulsory collective consumption and saving involved in these policies and procedures is quite apart from such direct controls as government applies to investments and earnings in certain industries like railroads and public utilities, and when it is considered in conjunction with the more specific and comprehensive controls which government has over business management and labor, prices, wages and profits it seems clear that the decade of New Dealism and the war has left us with a kind of economy in which the form of private ownership and private capital has been preserved mainly as an empty shell from which most of the substance has evaporated. All of the obligations, risks and responsibilities of private ownership remain, but the authority and benefits thereof have become largely nominal, or imaginary. It is no rhetorical statement to say that the private capitalist enterprise economy in America today is one in which about two-thirds of the value of the private capital is under government mortgage, in which more than a quarter of its income is under government garnishment, and in which virtually a third of the employment consists of working for the government.

There is probably a critical point in every economy beyond which the accumulation and use of capital in enterprise by private voluntary competitive effort breaks down and the process of compulsory collectivization becomes progressive and irreversible. Economists have tried to calculate that critical point, and estimates differ; but I believe that we are perilously near to it if not past it in America today. The force of individual ingenuity, inventiveness, ambition, aspiration for profit, power, prestige—and all the elements that comprise the quality we call enterprise in the American economy, is still powerful and still responsible for making it keep on ticking so strongly. But most of the economic incentives that nourish and sustain the enterprise factor in it are being deeply eroded by the collective confiscation and forced consumption under our current fiscal policies, and the consequences go far deeper than the fortunes or future of individuals.

Lost: Profit Motive

The profits of American business enterprise as a whole have always been in large part an accounting illusion determined mostly by the cycles of activity and prices, and leaving in the long run little more than enough to replace and expand the capital used. Today even that residue is illusory or doubtful, and it is probable that the American economy —even at the present peak of its productive activity—is beginning to consume its capital, in consequence of the ideas and policies under which we have been proceeding during the past fifteen years. Certainly it is not creating any, or enough to replace what it is wasting, at home and abroad, because the hope of profit, the expectation of return from private saving and investment has become so much more illusory for the individual than ever before. The color of the carrot that kept the enterprise donkey going in the American economy has faded considerably in the past decade, and for more and more people the reward has seemed less and less worth the sacrifice or the risk of effort to reach it. The idea of profit as a return for the risk of enterprise has practically disappeared, and the public conception of what is proper or permissible for that purpose has shrunk to the dimensions of a nominal interest rate on a government security. The incentives for saving, investment and enterprise have been so steadily and drastically reduced that the prospective supply of capital and competent management for the improvement and expansion of established business as well as the development of new industries has become problematical. If the American economy did not work, or doesn't any longer because of over-saving and under-consumption, we should be well on the way to recovery by now, but compulsory saving and public spending or lending are not a remedy for inadequacies of private capitalism. Their purpose and effect is to dissipate and waste what private capital accumulates, and to discourage the accumulation and use of any more.

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Rates — a Challenge

By G. M. Gadsby
President, Utah Power & Light Company

An address before the Fifteenth Annual Convention of the Edison Electric Institute, Atlantic City, N. J., June 5, 1947

THE future itself is a challenge. A challenge to our nation to maintain its high standard of living surrounded by a world in want. A challenge to the private electrical operating company to maintain itself against the pressure of the exponents of a planned economy and local demands for continued heavy Federal spending for more and more Federal power projects. The daily press rings with the appeals of the politician—and, alas, the local business organization—for increased local government expenditures. In this challenging world the place of rates for electric service does not presently loom large but he who runs may read and the caution flag should be kept at the masthead until the variableness, strength and direction of the economic winds can be more accurately foretold.

MR. GADSBY

Act on Fact

Many years ago at one of the meetings of the Pennsylvania Electric Association, Mr. Samuel Wyer, then director of the Smithsonian Institute, in discussing some of the current problems confronting our industry admonished the taking of four steps before reaching any important decision. These are:

"Get the facts, record the facts, face the facts, ACT."

That sound advice is pertinent today.

Few of us correctly appraised the rapidity of load growth as it has developed since VJ-Day. In connection with refunding and recapitalization plans our company's commercial and statistical departments had occasion to make up 5-year estimates for use in hearings before the Securities and Exchange Commission. Those estimates anticipated some slackening in demands for service during a reconversion period of at least a year and then the resumption of growth on about the trends of the 1935-1940 period. Even on this basis we encountered difficulty in persuading the experts on the Securities and Exchange Commission staff that we were not overly optimistic. Experience has shown that those estimates were ultra conservative. Throughout the whole country the load growth and increase in revenues has been phenomenal.

Let us keep in mind, however, the experience of the industry as summed up 25 years ago by the statement that the engineers are constantly improving equipment and increasing efficiency with the State and Federal regulators continually on their heels just as ingeniously finding ways and means for taking away the resultant increases in income. However great the strides which have been made in the technology of electric service in the past few years, the regulators with new theories of valuation and depreciation accounting have advanced backwards on the operating statement at an even greater rate.

In considering the possibility of maintaining present rate levels or making further reductions in the face of increases in costs in every component of our plant and operating accounts it behooves us to start anew in getting and recording the facts then facing them for action. We may be proud that our industry almost alone has come through the war and inflationary period to date with a record of decreasing unit prices. But now it may well be that we are approaching the end of the road along which we have been traveling of offsetting increasing costs with greater efficiency, improved load factors and decreasing money rates. In the words of the mining industry of our West there is still a good reserve of pay ore but it is capped with hard rock and the day of high grading is coming to a close.

Coincidence Factor

To render additional service today involves more than incremental fuel costs. An additional factor is becoming of increasing importance, this is the reciprocal of diversity factor or what our rate experts call the coincidence factor, meaning the effect of the individual users' peak demand upon the system load peak.

Facts which have been secured and recorded indicate that as to residential and farm service, individual load factors range between 10 and 30 per cent for the majority of the customers. The average group diversified load factor for this class of customers has remained fairly constant at about 30 per cent regardless of increased use per customer. When we were supplying small loads it was possible to adopt low tail-end rates without jeopardizing earnings. However, with an increase in the size of the load many of these tail-end rates have become insufficient at the prevailing average load factor. Data accumulated on individual customer load and coincidence factors indicate that coincidence of loads does not increase as rapidly as load factor beyond about 30 per cent individual customer load factor. Increased use beyond this load factor tends to increase the average group load factor, so lower rates may be offered in this range, provided control be established over load factor in the rate schedule. Much more information on this relationship between coincidence factors and load factors is

necessary, first to determine the place of the individual user in his own group, then the relationship among the different groups or customer classifications, and finally the resultant effect upon the system peak load. This calls for load research on a much broader basis than is now being conducted.

It is not necessary here to review the three components of the cost of service, to wit: the customer, capacity and energy components, but it is important to emphasize that the capacity component is the largest of the three and because of the great increases in cost of every item of plant equipment must be given even greater importance in the design of new or changed rate schedules. To illustrate: If the ratio of revenue to total plant account and working capital is now in the order of 1 to 5.50 it is possible that the ratio of new revenue to increased plant to be installed in the next three years will be found in the order of 1 to 6.75 or even 1 to 7.

Demand and Rates

There is no reason to believe that in the next two or three years there will be substantial decrease in the cost of labor and materials which go into maintenance and operating expenses nor is there any immediate prospect of substantial tax relief. The inevitable conclusion then is that present rate structures as applicable to loads having today's load and coincidence factors must be maintained if new business is to make its fair contribution in sustaining the present rate of return. Further increases in costs or a change in load characteristics which will tend to increase the coincidence effect may necessitate a restudy of present rate schedules so as to shift the steps within the rate schedule to meet the altered cost component relationships. Having suggested this conclusion it is in order to stress the need for further research in customer uses and analyses of customers' accounts to the end of ascertaining the coincidence factors within each group and among the groups so that intelligent rate developments can be made to assure an income increase commensurate with further increase in use.

Such studies as have been made indicate there is a profitable field awaiting development in improved use of present demand or an increase in load factor exceeding the increase in coincidence factor, and this brings into the discussion the elasticity of demand. Elasticity as used herein means the control exercised by the customer as related to price. The first few kilowatthours used by any customer is inelastic in that such use is independent of prices as they now obtain. This block roughly corresponds to the number of kilowatthours in the first step of residential and commercial schedules.

The next block in terms of elasticity includes use in which price is somewhat of a factor but after use is once established, convenience rather than the monthly bill controls. Again using a figure for illustrative purposes rather than exactness we might say that such use extends to 20 or 25 per cent load factor. Beyond this there is a range of potential business in which elasticity of demand is controlling.

At a low cost uses may be developed valuable enough to the consumer so that he will be willing even to readjust the household economy and habits in order to make use of such services. Inasmuch as this type service must conform to the requirement of increasing load factor more than coincidence factor the rate structure must incorporate a load factor provision. This does not mean that existing rate forms need give place to straight load factor rates. The present block rates are well established and have customer acceptance. A load factor provision can readily be added to present schedules by offering a lower tail end rate for a use in excess of a predetermined number of hours' use of the customers' demand. Once more for illustrative purposes let us say the present bottom step per kilowatthour will apply from its present beginning up to 220 hours' use of the demand per month and all kilowatthours in excess of 220 hours' use be offered at one-half or less of the present tail-end rate. The incidence of such a change on present revenues will be found to be small, and with renewed sales efforts really profitable new business may be added.

Lower Rates or Rebates?

Turning briefly to those situations in which a satisfactory rate of return may be currently maintained with less than present net income it is suggested that equally satisfactory customer results will be obtained if instead of reductions in the basic rate schedules consideration be given to annual customer refunds or dividends or to a community contribution in some other form. In the years gone by when substantial rate reductions have been made we were all prone to advertise the overall magnitude of the rate cut and at the same time plan an intensified sales campaign which would recoup the loss in revenues by increased use. The psychological public relations effect of such advertising has always been dubious and in many instances negative. Only if the customers' use remained the same would he be able to notice his relatively small share of the advertised huge total saving based on the preceding twelve months' record.

Our graphs showing the unique contra-trend of average unit costs of electricity compared to practically all other elements in the cost of living curves, offer a convincing picture which is good general publicity. However applied to a given customer I submit it is not the best approach.

Suppose a landlord leases a five room house for $50.00 per month then makes a two room addition, at the same time increasing the monthly rent to $66.50. Maybe the tenant can be made happy because his monthly rate per room has been cut 50¢ but I venture to say he'll think his rent has been raised even though his satisfaction with the improved livability of the house is greater and the new monthly cost entirely acceptable. Why try to sell him a lower unit rate when the greater opportunity exists for making him appreciate the whole house and particularly the added luxury of his increased living space? In my opinion, at least customerwise, the same goes for rate cuts.

Getting back to the *present*—and I emphasize the word *present*—possibility of revenue reductions, here is a radical suggestion which has not been trimmed to fit all conditions nor is it guaranteed to pass regulatory review. It has already appeared in some of the trade literature so is not original. Instead of giving a rate reduction with its relatively small effect on the average customer's monthly bill, offer the total amount as a contribution to the community in the form of cash, decrease in this year's cost of street lighting, increase in the quality and quantity of street lighting or the inclusion of lighting for parks, recreational areas, or ball fields without increase in the total municipal charge for all service. Such action would result in (a) a decrease of the tax load on the community or (b) an improvement in the safety, appearance or recreational opportunity within the community.

Paring Costs

So much for the general question of rates. The second part of the challenge offered by economic conditions of today and the immediate future is that of improving the operating statement by decreasing costs. As a first suggestion, operating and maintenance costs should be scrutinized with a view to increasing the number of patches instead of buying new pants when the old ones wear thin. We are in an economy of scarcity and high prices. If we get along with what we have to the greatest possible extent, replacements at a later date will be at lower cost and support the general economy when such support may be needed.

Applying this to customer and distribution costs, some changes in procedure might be planned either to be made effective now or held in reserve for use as a last defense against rate increases. Extended meter reading periods, closer control over the routing of service calls, intensive review by the distribution department of transformer loadings offers some potential savings. In the general field of metering and customer accounting mechanization should be encouraged and constant surveillance made of the use to which statistical data and reports are put with the elimination of all forms and accounting work which are not constructively used and which cannot be shown to return the cost of their compilation. On the other hand, research along the lines heretofore suggested should not be curtailed.

The third part of the challenge is the possibility of further simplifying rates and operating procedures with improved public relations as an objective. Through the years various experiments have been made in rate structures and different types of uses brought into being rate schedules particularly adapted to each use. The industry at large has outgrown that phase of rate making. Company by company the number of rate schedules have been reduced and further simplification is in process. The education of the public in the value of electrical service as compared with other household items of expense has proven of more value than the earlier efforts to teach the consumer how to read his meter. It is true the kilowatthour is an intangible thing but it is just as true that nothing we can do will give it physical form and substance. Let's accept that.

It is but natural that Mrs. Customer is concerned about how much it costs to operate a sweeper, iron, range or water heater for a month and is but little interested in the average rate in cents or mills of the resultant number of kilowatthours used. The salesmen have found this out and have developed tables and devices on the slide rule plan so that in a given territory a customer can readily determine what the additional monthly cost will be for an added appliance taking into account service already being purchased. The rate engineers have worked through the years designing lower and better load building rates, at the same time gradually giving ground on purely technical considerations to the end that rate schedules might be more understandable. Such progress is by no means at an end.

When the industry itself has determined the area in which it can profitably sell additional kilowatthours at a lower rate, controlling or new metering devices may be required. To dream up just one suggestion let us conceive that in the home of the future there will be a small control box which will show a red light when the total load reaches a predetermined maximum. This will indicate that the bill will be higher because of what we know as block extenders in the schedule or because the demand component will go beyond the previous maximum. The same box will have pushbutton controls so that certain things can be cut off or it may be that by an arrangement of relays such circuits will automatically be cut off when the total load reaches the predetermined value. No lessening of service will result if the water heater circuit is interrupted while the range is utilizing four elements. Again when the heat pump comes into its own it will offer some possibility of total load regulation. The consumer will then know that the control of the monthly cost of his service is his to command, even though that service will still be measured in terms of kilowatts and kilowatthours.

To sum up: (a) Rate reductions in the face of high cost levels now prevailing are not generally possible; (b) If some concession can, or for political or other reason, must be made, try some method other than lowering basic schedules; (c) Incremental use increases capacity costs at a higher rate than in the past; (d) Research in the field of coincidence factors is exceedingly important and may well point the safe road to future rate changes; (e) The field of greatest elasticity offers profitable cultivation, thus increases in importance as overall plant capacity goes up in cost: and finally (f) Keep on talking about and advertising the value of electric service and the low monthly dollar cost of added appliances and better lighting—the residential and commercial customer is only *incidentally* concerned in kilowatt and killowatthour unit cost even though for convenience they are used for billing purposes.

Today's rate challenge can be safely met only when we take cognizance of the changing meaning of incremental costs, inter-cost component relationships, and the importance of the coincidence factor. May I conclude—*Get the facts, record the facts, analyze and face the facts, then* ACT.

What Makes American Enterprise Keep Ticking?

(*Continued from page* 240)

So, when you look closely at the clock of our American economy, the time is not what it seems today on the face. In terms of wear and tear and waste and loss it is much later than we think. The mainspring of this enterprise economy is not broken, but greatly weakened; the balance wheel is out of alignment as between wages and investment, consumption and saving, and the principal jewels of the movement—the free market, and free competition, have been worn out, lost or discarded. It is still ticking, but if we are to keep it ticking for much longer or more than feebly, these defects will have to be repaired pretty soon, unless the American people have really decided that they want to replace the works with a completely new imported movement. From the way they have let the American economy be monkeyed with in the past fifteen years you would think they don't know the difference, even yet.

Government Competition Is Cornerstone of Socialism

"FOR nearly a quarter of a century, there has been developing in America a dangerous philosophy that the ills of capitalism must be cured either by permanent Government subsidies of distressed groups or by Government operation of business which competes directly with private enterprise.

"If the laws of supply and demand are maintained, private enterprise can and will produce abundantly without having to ask Government bureaucracy for assistance. Government competition with business or permanent Government financial assistance to business are the cornerstone of socialism."—Rep. WALTER C. PLOESER (Mo.), Chairman, House Small Business Committee.

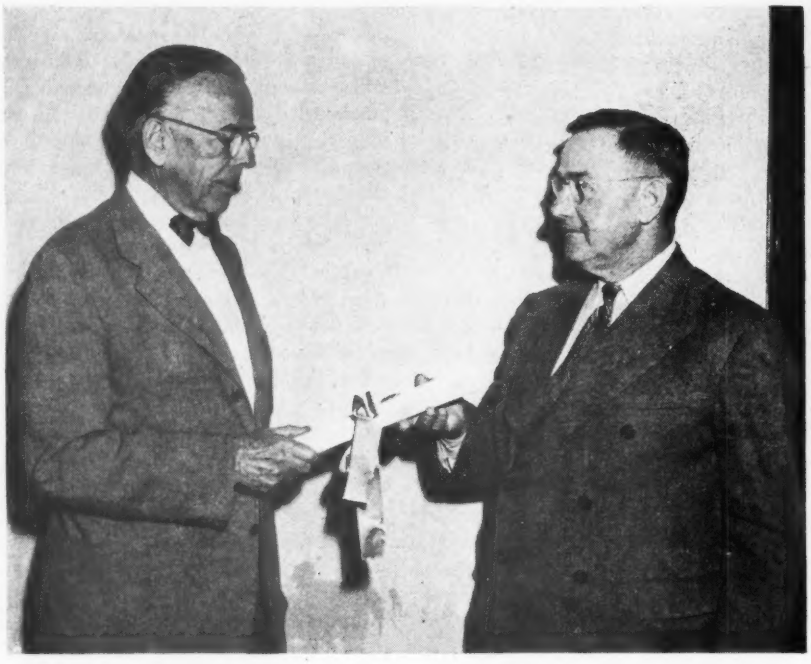
Twelve Public Service Company of Colorado Employees Received Matthews Valor Award

FOR extraordinary courage and devotion to duty, 12 employees of the Public Service Company of Colorado were honored on June 4 with the Claude L. Matthews Valor Award at the Edison Electric Institute's 15th Annual Convention at Atlantic City, N. J. These men, in a titanic struggle against the elements, prevented destruction of a section of one of the company's major 100,000-v transmission lines during a 13-day blizzard in Hagerman Pass, Colorado, in January 1946.

The group struggled over 12 miles of perilous patrol trails in ascending snow-covered slopes of the 12,200-ft pass, to reach the endangered line. Marooned in emergency cabins for 8 days of sub-zero weather, they attempted emergency repairs to 3 buckled steel towers, on the summit of the mountain. Roped to the 45-ft structure, harassed by cyclonic winds and the weight of accumulated ice on insulators and spans, the group succeeded in making tower repairs that saved the line.

The award was made by H. M. Sawyer, Chairman of the Institute's Prize Awards Committee, to E. V. Stuart, leader of the honored group. Each member of the group will receive an appropriate lapel pin, with citation.

The Public Service Company employees who participated in the exploit include Mr. Stuart, transmission line superintendent; Eldin C. Larsen, assistant superintendent; Glen C. Farnsworth, Sam C. Phillips, A. J. Lumsden, Ernie Richey, E. L. Noland, G. E. Atkinson, T. G. Johnson, Harry O. McIntosh, E. D. O'Connor and S. M. Stroebeck. The crew included maintenance and repair men, transmission line engineers, truck drivers and line patrolmen.



CLAUDE L. MATTHEWS, founder of the Award, in a presentation ceremony at the EEI Convention hands to E. V. STUART, leader of the Public Service Company group, the scroll testifying to the Valor Award.

Background of the Award

At the height of a 13-day blizzard on the Hagerman Pass, in the Continental Divide west of Leadville, Colo., the members of the party conquered twelve miles of perilous patrol trails and shelf road in ascending the ice and snow-covered slopes of the 12,200-foot pass to reach the endangered line. This pioneer circuit embraces one of the world's first, and its highest, 100,000-volt, transmission lines. It stems from the Public Service Company's Shoshone hydro plant on the Colorado River, on the west, and crosses the Continental Divide three times—over Hagerman, Fremont and Argentine Passes, on its 156-mile course to Denver, Leadville, Dillon, Georgetown, Idaho Springs and other mining camps.

Rescue Crew Marooned Eight Days

For eight days and nights of sub-zero weather, the rescue party was marooned in overcrowded emergency cabins on the approaches to the pass while making repairs to three badly-buckled steel towers on the summit of the mountain. Roped and belted to the 45-foot structures, momentarily threatened with collapse because of cyclonic winds and the weight of accumulated ice on the big 25,000-pound insulators and the long copper spans, the crew succeeded in making tower repairs that saved the line.

Engineer Farnsworth made calculations that indicated that the 10 to 15 inches of ice that had accumulated on the conductors weighed at the rate of four tons per span. The terrific winds, for days, had swung these swaying conductors with such force that the top part of the towers had buckled.

Repair Materials Packed in on Men's Backs

To strengthen the weakened framework of the towers, the men improvised splints and braces from discarded wooden cross-arms, found weighted down with stones near one of the shelter cabins. These were used to supplement materials packed in on the backs of the crew members and transported in a "ski-jeep" which helped them to break trail. A tangle of abandoned steel cable, which the wind had uncovered beneath one of the towers, also was converted to use, in girding and strengthening parts of the damaged structures. This work frequently was interrupted, for hours at a time, by blinding, wind-driven snow and sleet. The men were compelled to retreat to the emergency cabins during such times.

Because of the high winds it was impossible to maintain fires on the job-sites. The men resorted to blow-torches to thaw frozen gloves and mittens and

Members of the Public Service Company of Colorado Group who received the Matthews Award, together with Company officials
Left to Right: W. D. Hardaway, Supt. Hydro & Trans. Dept.; G. C. Farnsworth, Trans. Engineer; Ernie Richey, Lineman; T. G. Johnson, Lineman; Pres. John E. Loiseau; Eldin C. Larsen, Assistant Trans. Line Supt.; Sherman Stroebeck, Driver; E. L. Noland, Lineman; E. V. Stuart, Supt. Trans. Line Dept.; A. J. Lumsden, Patrolman; and F. F. McCammon, Vice President.

to warm benumbed hands. Coffee was brewed over the wind-defying flames of solder-pots. During several days when the thermometer dropped to more than 30 degrees below zero, the men suffered frosted faces, hands and feet, but all carried on with their work.

216-Mile Expedition to Reach Top of Pass

The epochal expedition to the top of Hagerman Pass started from Denver on Dec. 31, 1945, after operating officials had received word that the lofty line and towers were threatened with destruction. Patrolmen Phillips and Lumsden, who guard the line on the lower reaches of the pass, had reported serious storm conditions on the mountain, following a dangerous reconnaissance trip prompted by advices from Shoshone where a line trip-out had been registered. It entailed a difficult 216-mile roundabout expedition from Denver across the Continental Divide to the Shoshone station, near Glenwood Springs, and a rear approach to Hagerman Pass from the west. E. V. Stuart, transmission line superintendent, was in charge of the expedition.

Stuart, and the force he had hurriedly recruited in Denver, left in a large truck carrying the company's unique, snow-going "ski-jeep," or snow-motor, equipped with interchangeable wheels and ski-runners on the front end. From Basalt, Colo., the crew proceeded up the 40-mile, snow-banked valley of the Frying Pan River, to Reudi and Bigelow, at the foot of the pass, where it was joined by Phillips and Lumsden.

A bulldozer stationed at Bigelow was employed in an effort to clear the road up the slope of the two-mile-high pass, but it became lodged in the snowdrifts, ahead of the supply-carrying truck, when within 12 miles of the goal. The snow-motor was taken from the truck at this point, loaded with supplies, and Stuart and Larsen went ahead with it, breaking trail for the pack-laden men who followed on snowshoes.

A large part of the snow-banked trip was made over the roadbed of the long-abandoned Colorado Midland Railway. One of the most dangerous experiences on the perilous route was the negotiation of "Hell Gate." This is a narrow road blasted from a cliff towering more than 1000 feet above the floor of the canyon, which was one of the spine-tingling scenic attractions of the pioneer railroad.

The Sellars shelter station was reached that evening. Some of the men remained there, while others proceeded to the Ivanhoe cabin, nearer the apex of the pass. These cramped cabins became headquarters for the crew during eight days of sleet-pelted and wind-blasted labor on the towers.

When the crew departed upon completion of the task, it had exhausted its own food supplies and the emergency caches which had providently been placed in the shelter cabins the previous fall. Several of the men were suffering from frostbite, face injuries from flying particles of ice and painful wind scalds.

In recognition of the outstanding achievement of the 12 men, John E. Loiseau, president and general manager of the Public Service Company, this year, on the first anniversary of the exploit, dedicated to them the topmost of the three rescued towers as their "Arch of Triumph."

The Claude L. Matthews Awards, administered by the Institute, are offered annually to employees of all electric light and power companies, for "extraordinary courage and devotion to duty in efforts to maintain important electric service, or to restore service in the shortest possible time."

PERSONALS

WILLIAM F. WYMAN has been elected president of the Central Maine Power Co., Augusta, succeeding WILLIAM B. SKELTON, who becomes chairman of the board. GEORGE S. WILLIAMS, vice president and general manager since 1926, has been named executive vice president, and CARROLL N. PERKINS has become first vice president.

Mr. Wyman, son of the late Walter S. Wyman, co-founder and for many years president of the company, joined the utility in 1923 following his graduation from Harvard College. Starting with a power station construction crew at Oakland, he was later assigned to line work, wiring and other duties of expanding range, becoming district superintendent of the Boothbay Harbor area in 1925 and distribution engineer with headquarters at Augusta in 1927. From 1928 to 1930 he was in charge of rates and schedules; from 1930 to 1935 central division manager, and then assistant to the company's general manager. In 1942 Mr. Wyman became general superintendent and a vice president in 1945.

Mr. Skelton has been a prominent Maine lawyer, banker and business man for many years, following his graduation from Bates College in 1892. He has held many public offices and from 1914 to 1919 was a member of Maine's first Public Utilities Commission. He became a director and vice president of the Androscoggin Electric Co. when that utility joined the Central Maine company in 1920, and president of the latter in 1942 after the death of W. S. Wyman. Mr. Skelton also has been a director of the New England Public Service Co. since its organization in 1926, and was a vice president at the time of Mr. Wyman's passing, when he became president of NEPS. He is also chairman of the executive committee of that company, with which are affiliated the Public Service Co. of New Hampshire and the Central Vermont Public Service Corp., besides holding various directorates in railroads and banking fields.

Mr. Williams began his utility career with the former Kennebec Light & Heat Co., and was superintendent of the Gardiner district when it merged with Central Maine in 1910. He became general superintendent of the C.M.P. in 1917, and in 1926, vice president and general manager, also being made a board member. Mr. Perkins has had a notable career in the legal profession, and has been executive vice president and a director of Central Maine Power since 1942.

ROSS S. WALLACE will retire on July 1 as chairman of the board of directors of the Central Illinois Light Co., Peoria, following 48 years' association with that utility and its predecessor company. He will remain as a member of the board.

A graduate of the University of Illinois, Mr. Wallace went to Peoria in 1899 as chief engineer for the Peoples Gas & Electric Co., predecessor of Central Illinois Light. He has served as chief engineer, department superintendent, vice president and general manager, president and chairman of the board.

HARVEY K. BRECKENRIDGE has been elected vice president of West Penn Power Company, according to an announcement by President H. L. Mitchell.

Mr. Breckenridge has been with the West Penn Power Companies since 1925. For the past 11 years he has been assistant to the president and personnel director for West Penn Power and Railways Companies, in charge of employee relations activities.

He is a member of the board of directors of the Community Chest of Allegheny County; the Federation of Social Agencies, and the Allegheny Vocational Counselling Center. He is past president of the Pittsburgh Personnel Association; a member of the Operations Committee of the Pennsylvania Economy League, and was a member of the Regional War Labor Board during World War II.

Mr. Breckenridge has served on many committees of the Pennsylvania Electric Association, and is Chairman of the Industrial Relations Committee of the Edison Electric Institute.

He is a graduate of Columbia University, with Bachelor of Arts and Mechanical Engineering degrees.

ARNOLD W. MILLIKEN, vice president and newly elected member of the board of directors of the New York States Electric & Gas Corporation, has been placed in charge of technical operations and will assume additional duties under three advancements announced by Ralph D. Jennison, president.

DAVID A. LEWIS, manager of the Eastern Division, will come to Binghamton as assistant to Mr. Milliken and WILLIAM G. RHODES, new business manager of the Eastern Division, will succeed Mr. Lewis as division manager with headquarters at Brewster.

Under the changes, Mr. Milliken's duties will include supervision over operating and construction engineering, meters, stores and purchasing, power and gas supply, and transportation. With headquarters in Binghamton, he will assume many of the duties of the late William G. Hickling, vice president and general manager.

Mr. Milliken was born in Moosup, Conn., and is a graduate of Lowell (Mass.) High School and the Massachusetts Institute of Technology, where he received a Bachelor of Science degree in electrical engineering in 1922.

He started his utility career that same year as a results engineer in the power plant of the New Bedford (Mass.) Gas & Edison Light Co. In 1924 he became assistant to the manager of the electric department and in 1930 he was made manager of the department. Later he became assistant general manager of that company and remained in that capacity until February, 1939, when he was made vice president and Eastern Division manager of NYSE&G, with headquarters in Brewster. On May 1, 1945, he was appointed superintendent of operations on a statewide basis with headquarters in Binghamton.

Mr. Lewis was born in Olyphant, Pa., and is a graduate of Pennsylvania State College, where he received a degree in electrical engineering in 1923. Following his graduation, he was employed by the Public Service Corporation of Northern Illinois in the distribution departments at Chicago and Joliet.

He joined NYSE&G on February 1, 1925, as distribution engineer, assuming additional duties of a general engineering nature in 1929. He was made engineer and operating superintendent of the Geneva area in July, 1931, continuing in that capacity until he was appointed operating superintendent of the company's Western Division on February 16, 1941. He was appointed manager of the Eastern Division on September 1, 1946.

Mr. Rhodes is a graduate of Ithaca

High School and Cornell University, where he received a degree in mechanical engineering in 1922. For a year following his graduation he was an instructor in machine design at Cornell.

He began his career in the electric industry in 1923 as a test engineer for the Pennsylvania Power & Light Co., at Allentown, Pa., continuing in that capacity until he joined NYSE&G in February, 1924, as power sales manager at Ithaca. Following that he held various sales positions in Oneonta, Cortland, Mechanicville, and Brewster. In 1930, he became new business manager of the Eastern Division.

Officials of The United Light and Railways Service Company have announced the appointment of C. B. KELLEY, Electrical Engineer in charge of power stations at the Kansas City Power & Light Company, as power pool manager. In his new assignment, Mr. Kelley will control all the operations of the 161,000-volt interconnecting transmission line now being constructed by six companies in the United System.

The new line will enable all companies to utilize more effectively their equipment and to pool their resources for emergency uses. It will extend on the north from the tri-city group of Davenport, Moline and Rock Island, westward to Iowa City and Des Moines, southwest across Iowa and through Missouri by way of Maryville, St. Joseph to Kansas City, and thence to Fort Scott, Kansas, as the southern terminus.

Mr. Kelley will have the responsibility for the transmission of electric energy, contacting member companies through the load dispatchers and working closely with an operating committee. This operating committee will consist of one member from each of six companies in the United System, now engaged in building the new interconnection.

Mr. Kelley has been associated with the production department of the Kansas City Power & Light Company since 1920, serving for the first three years as maintenance foreman. In 1923 he became assistant electrical engineer of power stations, serving in that capacity until 1943 when he was advanced to electrical engineer of power stations.

He is a professional engineer, a member of the Western Chapter of the Missouri Society of Professional Engineers, the American Institute of Electrical Engineers, the Electrical Maintenance Engineers of Greater Kansas City, the Quarter Century Club of the Kansas City Power & Light Company, the Kansas City Club and Masonic Lodge #614.

JOHN L. MACLEOD was elected treasurer of the Detroit Edison Company at the May meeting of the directors. Mr. MacLeod was made assistant treasurer in 1935 and has been secretary of the board which administers the employee's retirement plan. He succeeds ARTHUR D. SPENCER who retired as treasurer on May 1.

Mr. MacLeod was first employed by the company in the accounting department in 1916. He has been in the treasury department since 1923 and has been trained in its various divisions, including insurance, stockholder's records and investments.

He was born in Calumet, Michigan, in 1898 and served in the Marine Corps in World War I.

As an extension of customer and public information and educational services of Detroit Edison Company to keep pace with the $96,000,000 expansion program, the appointment of E. P. LOVEJOY as director of public information division has been announced by James W. Parker, Edison president and general manager.

Mr. Lovejoy joined the engineering staff of Edison in 1928, having served previously with General Electric Company. For the past three years he has been news director. The division's duties include direction of institutional and corporate advertising, radio, news and trade journal articles.

JOHN W. B. FORINGER has been appointed to the newly created position of vice president in charge of industrial relations of the Kansas City Power & Light Co., Kansas City, Mo. Mr. Foringer goes to Kansas City from Chicago, where he has been in charge of industrial relations for the past five years for the U. S. Steel Corp. Prior to that time, he was engaged in industrial relations work for a two-year period with the Carnegie Illinois Steel Corp. in Pittsburgh, a U. S. Steel subsidiary.

Mr. Foringer was graduated from the University of Indiana School of Law and received Bachelor of Science and Master's degrees from Grove City College and Valparaiso University, where he majored in banking and finance. Following graduation, Mr. Foringer practiced law in San Antonio and on the Pacific Coast before engaging in industrial relations work.

ROBERT G. FORTUNE, division distribution engineer for the Carolina Power & Light Co. in the Asheville, N. C., area, has been promoted to general operating superintendent for the same territory.

N. HAWTHORNE HAWKINS, JR., manager of Birmingham Electric Co.'s transportation department, Birmingham, Ala., has been elected a vice president of the company.

After serving an apprenticeship with the company, he became a regular employee in 1927 as a customer contact representative in the Birmingham district office division, where his duties consisted of handling customer complaints. In 1937 he was made manager of the Birmingham district office, but in that same year when the company organized a personnel department, Mr. Hawkins was appointed its director. Subsequently he was named to head the claim department. Remaining in the capacity of general claim agent, in 1944 he went into the transportation department as assistant manager, becoming manager in 1945. This position he still retains.

Virginia Electric & Power Co. has announced the election of DONALD C. BARNES as chairman of the board of directors. Mr. Barnes goes to the Virginia utility from his position as president of the Engineers Public Service Co. of New York, the holding company which controlled Virginia Electric & Power and other utilities and which now is dissolving following a long controversy with the Securities and Exchange Commission.

Under the new set-up, Jack G. Holtzclaw will continue as president.

Mr. Barnes began his career in the utility business in Birmingham, Ala., with the Birmingham Railway & Electric Co. and later was employed by the Arkansas Power & Light Co. in Little Rock. He subsequently directed operation of utility properties in Massachusetts and Rhode Island and in Everett and Seattle, Wash. In 1924 he was made district manager for properties operated by Stone & Webster in Washington, Nevada, Florida and Georgia, and since 1931 he has served as an official of Engineers Public Service Co., of which he has been president for the past ten years.

A Look at Your Broadened Responsibilities

(Continued from page 216)

I'm saying you can't have a real depression while you have all that money in the hands of the people of the U. S. You can have hesitation on their part to make use of it—that's what you have right now. That's due to propaganda for lower prices. We have propaganda for lower prices, much of it emanating from the District of Columbia, but we do not as yet have any corrective measures deflating the money supply which would really start a move toward lower prices.

Propaganda for lower prices can create lower prices for a short time, a short time in the field of necessities, a little longer time in the field of semi-luxuries, and a still longer time in the field of luxuries. It can produce a buyers' strike which in turn can produce a reduction in production, but sooner or later, and it won't be long, the people who are holding back their buying in the hope of lower prices will despair, and when they despair of lower prices, they will rush to buy with that big supply of money available to them. When that rush comes, it will enter a market depleted by reduced production and a buyers' strike will have become a buyers' panic.

If we don't get control of the money situation, we are bound to have higher prices. We are bound to have continuing demand for higher wages, and you are bound to pay more for the money you borrow, because while in the early stages of an inflated money supply there is plenty of it, and you enjoy a low interest rate, pretty soon there will be very few people, as I said a moment ago, except the life insurance companies, who will invest for the long-term, and you will be afraid to confine your borrowings to the short term.

We long-term lenders, if this inflationary situation continues—and there is no stability apparently ahead of us—will start charging you an interest rate for the inflationary risk; that is, for the risk that the money we give you will come back with less purchasing power than it had when we made our loans.

In other words, if the inflated money supply continues, you will pay more for the capital you need and must have to meet the expansion that is ahead of you. If the inflationary tendency does not continue, it will be because of fiscal policies that get control of and stabilize the financial situation and then again you will pay more for your long-term money.

I'm saying, get your picture in order, from the point of view of the general public, from the point of view of the rate-making authorities, from the point of view of the stockholders, and then we will have a lot of money to lend you at what we hope will be a reasonable rate.

CONVENTIONS AND MEETINGS

1947

JULY

16-18 American Society of Civil Engineers, Duluth, Minn.

SEPTEMBER

5-11 National Electrical Contractors Association, San Francisco, Cal.

8-9 Accident Prevention Committee, EEI, EEI Headquarters, 420 Lexington Ave., New York, N. Y.

15-19 Illuminating Engineering Society, Roosevelt Hotel, New Orleans, La.

17-19 Indiana Electric Association, French Lick Springs Hotel, French Lick, Indiana

22-24 Northwestern Section, International Association of Electrical Inspectors, Eugene Hotel, Eugene, Ore.

25-26 Southeastern Electric Exchange, Fall Conference Engineering and Operation Section, Henry Grady Hotel, Atlanta, Ga.

25-27 Southeastern Electric Exchange, Engineering and Operation, Henry Grady Hotel, Atlanta, Ga.

29-Oct. 1 Southwestern Section, International Association of Electrical Inspectors, Mission Inn, Riverside, Calif.

OCTOBER

6-7 Prime Movers Committee, EEI, Benjamin Franklin Hotel, Philadelphia, Pa.

6-7 Electrical Equipment Committee, EEI, Benjamin Franklin Hotel, Philadelphia, Pa.

6-8 American Gas Association, Annual meeting, Cleveland, Ohio.

6-10 35th National Safety Congress and Exposition, Chicago, Ill.

9-10 Transmission and Distribution Committee, EEI, Benjamin Franklin Hotel, Philadelphia, Pa.

13-15 Western Section, International Association of Electrical Inspectors, Mount Royal Hotel, Montreal, Can.

15-18 American Society of Civil Engineers, Fall Meeting, New Orleans, La.

20-22 Eastern Section, International Association of Electrical Inspectors, Seaside Hotel, Atlantic City, N. J.

27-29 Southern Section, International Association of Electrical Inspectors, George Washington Hotel, Jacksonville, Fla.

27-30 National Electrical Manufacturers Association, Hotel Traymore, Atlantic City, N. J.

29-31 Southeastern Electric Exchange, General Sales Conference, Atlanta Biltmore Hotel, Atlanta, Ga.

30-31 Pennsylvania Electric Association, Electrical Equipment Committee, Benjamin Franklin Hotel, Philadelphia, Pa.

NOVEMBER

21-22 New Jersey Utilities Association, Seaview Country Club, Absecon, N. J.

DECEMBER

1-5 The American Society of Mechanical Engineers, New York, N. Y.

3-5 52nd Annual Congress of American Industry, National Association of Manufacturers, Waldorf-Astoria Hotel, New York, N. Y.

JANUARY

26-30 American Institute of Electrical Engineers, Pittsburgh, Pa.

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